Smithsonian

December 1978

Victorian High Renaissance (p. 48)

Above, detail of *May Sartoris at 16* by Frederic Leighton

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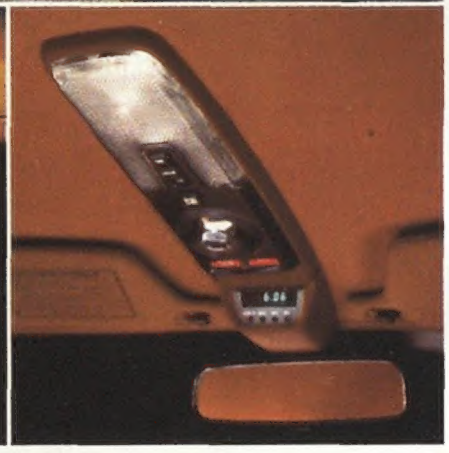

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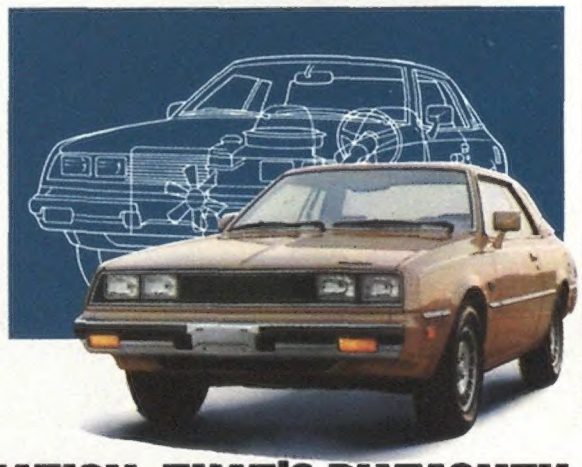

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December 1978

Smithsonian

Volume 9, Number 9

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What your home could have in common with the Met, the Tate, and the Louvre.

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Nothing Even Comes Close

Secretary Ripley's comments

The view from the castle

The benefits of environmental programs for emerging nations may not be instantly apparent, but they will pay in the end

For seven years the Smithsonian Institution has had an interesting program with the Peace Corps, helping to set up environmental projects in the developing nations and finding qualified people to carry them out. In these years we worked with 750 Peace Corps volunteers in 55 countries—studying conservation techniques for endangered species on the Galápagos Islands of Ecuador, streamlining the Philippines' forest research system, instructing Brazilians in range management, demonstrating water conservation projects in Honduras, and surveying river contamination in El Salvador to improve fishing potential.

The spin-off value of such activities is hard to measure, but it is far greater in emerging nations than might be surmised from a casual glance. Many of them lack the funds or people to undertake wildlife surveys, for example. Many are so concerned about urgent human problems that they are neglecting their own environment. And yet the environment, particularly in tropical lands, is the key to all our future. Every scrap of information that we can assemble about plant and animal life in harmony with humans in remote parts of the world adds a concrete piece of strategic intelligence for our own and our neighbors' use.

The Charles Darwin Foundation was started nearly 20 years ago in the Galápagos by an international assortment of biologists, deeply concerned that the flora and fauna of these islands—whose effect on Charles Darwin was so electric as to evoke the theory of evolution—was threatened with extinction. The foundation had a twofold purpose: to take direct action to safeguard the Galápagos' animals and plants, and to accustom the island dwellers and the people of Ecuador to think of the values of their strange neighbors. Now, years later, Ecuador is proudly taking the lead in safeguarding its Galápagos environment.

Two of the Darwin Foundation's best workers were Peace Corps volunteers who had just this year succeeded in raising Galápagos land iguanas in captivity. "How ludicrous," one might say. "Fancy wasting the time of the Peace Corps volunteers in rearing iguanas!" A little investigation, however, reveals a host of interesting facts about the work. Land iguanas are almost extinct, killed off by introduced dogs gone wild, and by rats and kindred creatures. They would probably disappear but for this highly skilled captive breeding program. Quite aside from any scientific information revealed, the Galápagos people will benefit from tourism and the creation of new jobs.

For reasons still unclear, the Peace Corps has decided to discontinue its joint program with the Smithsonian, apparently because it does not fit their definition of "meeting human needs." Work with iguanas is not perceived to have a connection. But ignoring basic ecological research while proclaiming to be interested in human needs is shortsighted.

Research on the Galápagos' unique forms of life is one of the best ways of helping the people there, since the satisfaction of their needs is inextricably linked to environmental health. As one who has spent much time overseas, I wish we Americans did not always see the world through such biased spectacles. Indeed, we are still "Innocents Abroad."

S. Dillon Ripley

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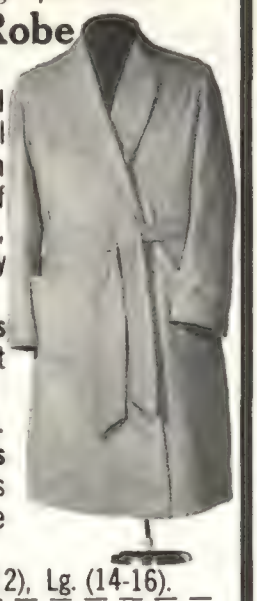

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Letters to the Editor

Zoo doctors

Dear Sir: I was truly fascinated by the article on the National Zoo's doctors, "They can persuade an ailing hippo to sound its *ah-hh*," in your October issue. But please do set my mind at rest on one point. Your caption accompanying the heartrending photograph of the newborn golden marmoset, which had been battered by its own mother, left some doubt as to its chance of survival. Did this fragile and precious little creature live?

I also wondered if it is unusual for mother marmosets to batter their babies.
Susan J. Slack
Flushing, New York

In captivity, it is not unusual to find cases of battered marmoset babies, if the mother has had no experience interacting with infant siblings as a juvenile. Despite the loss of this little marmoset, the National Zoo has a good survival record. Since the beginning of 1978, 20 of the marmosets born at the zoo survived. Ed.

Medieval Europe's inventions

Dear Sir: In Lynn White jr.'s article, "Medieval Europe foresaw planes, cars, submarines," your first illustration, *The Clock of Wisdom,* refers to the "woman sage explaining workings to an author." The woman sage is probably Sapientia, a personification of wisdom.
Gail L. Haphe
Urbana, Illinois

The manuscript illumination does indeed represent Holy Wisdom inspiring the author of The Clock of Wisdom. *The specific identity of this personification, known in French as* La Divine Sapience,

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is apparent from the halo of holiness and the crown of wisdom she wears. Ed.

Firewood

Dear Sir: In the interest of fairness, both sides of the firewood story should be presented. As building materials become scarcer and housing needs increase, it is hard to understand the logic in "If a tree in a forest is not burned . . . it will eventually die and decompose."

Do you really believe we can rationalize regressing to wood fires by roasting hot dogs in a blackout?

Arnold Nelson
Redlands, California

As the article stated, "wood as an energy source need not necessarily compete with the taking of trees for lumber. The wide use of wood scrap . . . simply [gives] a more complete utilization of the forest." Ed.

Barrio art

Dear Sir: Martin Zucker's article, "Walls of barrio are brought to life by street gang art," was of special interest to me.

Being from a border town (El Paso, Texas), we also have our barrio—referred to as the "segundo barrio." The local Chicano artists have been especially innovative in covering unwanted graffiti throughout this area of tenements and apartment buildings. The art [see below] describes the culture and portrays the plight of Mexican-Americans.

Los Angeles is not the only part of the country striving to improve urban development and emphasizing the need for a better way of life through public artistic expression.

Irene Clouse
El Paso, Texas

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PARIS

Teddy Roosevelt

Dear Sir: Regarding Joseph Kastner's article, "An English bird walk for President TR? Carry on!," a few more facts about Teddy's beginnings as a naturalist may be of interest.

Young Roosevelt's first offices were (at 13) "cashier, librarian and naturalist" of The Roosevelt Museum and treasurer of its successor, The Natural History Society, although several of his cousins and friends held higher posts than did the future President of the United States.

It is clear from the records of these organizations, now preserved in The Theodore Roosevelt Collection at Harvard's Houghton Library, that "Mr. T. Roosevelt, Jr." remained their guiding spirit through his teens, contributing such papers as "The Colouration of Birds" and "Ornithology of Egypt between Cairo and Assouan," the manuscripts of which are also to be found in the Harvard collection.

Wallace Finley Dailey, Curator
The Theodore Roosevelt Collection
Cambridge, Massachusetts

At the vernal and autumnal equinoxes, sun casts a 'serpent of light' shadow (left).

First American astronomers

Dear Sir: It was with avid interest that I read your article on America's first astronomers. I was especially intrigued because I ran into a related matter on a visit to the Yucatán several years ago.

My wife and I were at Chichén Itzá on March 20 and discovered a group of young people waiting for what they called "the show" shortly before sundown.

The setting sun fell upon the pyramid in such a way as to cast a shadow resembling an undulating serpent, which comes down the stairway from the top and joins the serpent head at the bottom of the stairway. We not only saw this happen but, for our future enjoyment, took a picture of the shadow [above, scalloped light at left].

Ben F. Goldman jr.
West Los Angeles

The child who sees "SIMPLE GIFTS: Six Episodes for Christmas" — a very special special on PBS-TV— will have a richer holiday to remember.

Twice in December, Public Broadcasting unfolds a joyous, story-filled one hour sequence for holiday watching, drawn, as might be expected of PBS, from art, literature and history, as well as laughter, love and fantasy."All segments," explains Producer-Director R.O. Blechman,"have to do with gifts of one kind or another, gifts of giving, gifts withheld, gifts sometimes promised, but not always fulfilled."

The show opener, "The Christmas Boy," by famed storyteller-illustrator Maurice Sendak, depicts a shoeless waif with no gift to give, who magically transforms himself into a Christmas tree to shelter his companions. • Next, a tale by Virginia Woolf, "The Great Frost," tells of a young nobleman's love for a foreign princess during a glittering winter in Elizabethan London.

Then, comes a contrast between the childhood Christmases of a boy who had much, young Teddy Roosevelt, and one who had too little, Moss Hart. • "December 25, 1914," relates a compelling true story of soldiers of good will who create a spontaneous moment of peace in the midst of battle. • Following this is a folksy revival of one of America's best loved comic strips, "The Toonerville Trolley." • Finally, "No Room at the Inn" raises a question: are we not today still turning away those who come to us in need?

The times:
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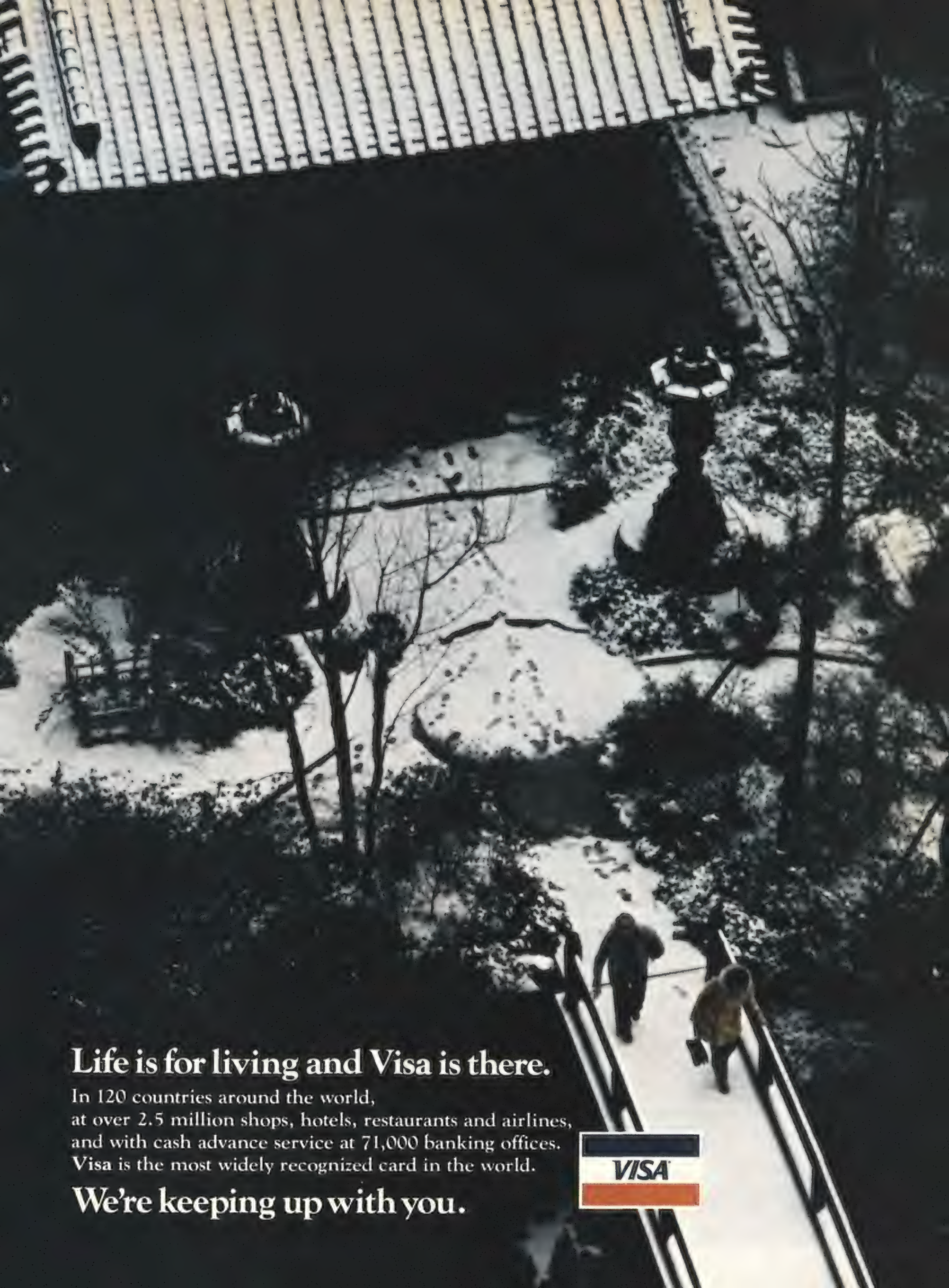
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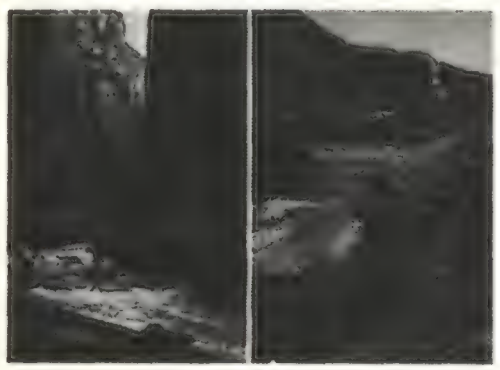

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Hannibal, Missouri

Dear Sir: It seems that William Zinsser was taken in by one of the "fictions" he sought to expose in his article on Mark Twain's boyhood home of Hannibal.

The author was a victim of the tourboat operator's fictionalizing when he was led to believe that Jackson's Island was the same island where "Tom and Huck Finn and Joe Harper played pirate and listened to guns being fired over the water by the townspeople, who thought the boys had been drowned. . . ."

When Mark Twain played on the island in the Mississippi as a boy, it was not Jackson's Island. It was Glasscock's Island, across the river from the mouth of Bear Creek. The island apparently was named for the Glasscock family, of whom at least one member, Thomas Glasscock, was a resident of Hannibal in the 1840s. The original Glasscock's Island was washed away long ago.

David W. Thorne
Seattle

Dear Sir: In Zinsser's article on Hannibal, he mentions Colonial Williamsburg which he says was "re-created from scratch" and Sturbridge Village which was "reincarnated from the past."

As a former resident of Massachusetts now living in Virginia, I am familiar with both places, and I feel the characterizations should be reversed. Sturbridge Village was created from scratch while Williamsburg has been reincarnated from the past.

Daniel S. Gwinner
Richmond, Virginia

New city park

Dear Sir: Regarding your article, "From old rail yard to new city park," it would have been impossible, in 1958, to look from the Statue of Liberty (Bedloe's Island) to the Central Railroad of New Jersey waterfront and see an "abandoned terminal" with "dilapidated railway cars, rusting tracks and rotting docks." These railroad facilities were not abandoned until April 1967.

J. Arthur McKaig
Silver Spring, Maryland

Mr. McKaig is correct about the closing date. However, the rail yard was in a state of dilapidation before the Central Railroad of New Jersey went into bank-

ruptcy, and the entire waterfront was dismal looking. Ed.

Phenomena, comment and notes

Dear Sir: Who really wrote that excellent column on the art sale at Sotheby's—James K. Page jr. (credited in Table of Contents) or Bennett Schiff (signature at end of article)?
R. E. Stearns
Chevy Chase, Maryland
Bennett Schiff. Ed.

Participatory museums

Dear Sir: I read with interest Sherwood Davidson Kohn's article, "It's OK to touch at the new-style hands-on exhibits" [September issue]. I wish you had mentioned Edwin Schlossberg, the originator and designer of all of the learning environment at the Brooklyn Children's Museum. Without Mr. Schlossberg, it would never have been the award-winning institution that it is today.

Mr. Schlossberg was contracted by the museum because he had in 1968 participated in the design of the White House Conference on Children and Youth, and in 1969 the World Game with R. Buckminster Fuller. For three years he was the administrator of Exhibition and Design at the Brooklyn museum and, afterward, designer of the learning environment.
Ronald Feldman
Ronald Feldman Fine Arts Inc
New York City

Dear Sir: It was quite pleasant to read Mr. Kohn's article and his description of the Brooklyn exhibits that make the learning environment there the functional and exciting place that he describes. Of course, we're more than a little prejudiced, having designed all of the exhibit components he mentions. Our work on this project has received several professional awards, the most recent from *Industrial Design.*

But, I readily admit that getting across the message about the vitality of these new institutions and their pioneering approach is the first order of business.
Brent Saville
Saville Design
New York City
Because of space limitations, the article did not include credit to Schlossberg for his concept or Saville for components. Ed.

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Phenomena, comment and notes

Shortness as an environmental virtue, flying like a lead balloon, sunlight and sex, and highway salt syndrome

It being the season of good cheer, made all the more necessary in many parts of the country by the onslaught of winter, let us get the bad news over with first.

People who live in snowy places are aware that their cars' lives are shortened by the salting of roads to clear away the ice and snow. This practice also has unfortunate side effects on children and other people, according to *Medical World News* (Vol. 19, No. 18).

Two public health professors from the University of Massachusetts studied two Boston-area towns, one of which gets its drinking water from wells, the other from a remote reservoir. In the town with the wells, the sodium content of drinking water was more than ten times that of the other town. (Most of the salt used on Massachusetts roads is sodium chloride; many other jurisdictions use calcium chloride.) And students in the high-sodium town had significantly higher blood pressure than their counterparts.

The researchers reason that wells are likely to absorb the salt runoff from nearby roads, whereas the remote reservoir does not.

The ark is sinking

Not long ago there was a conservation biology conference at San Diego, and the overall message, as reported in *Science News* (Vol. 114, No. 14), was dreary.

Studies of islands have shown that for

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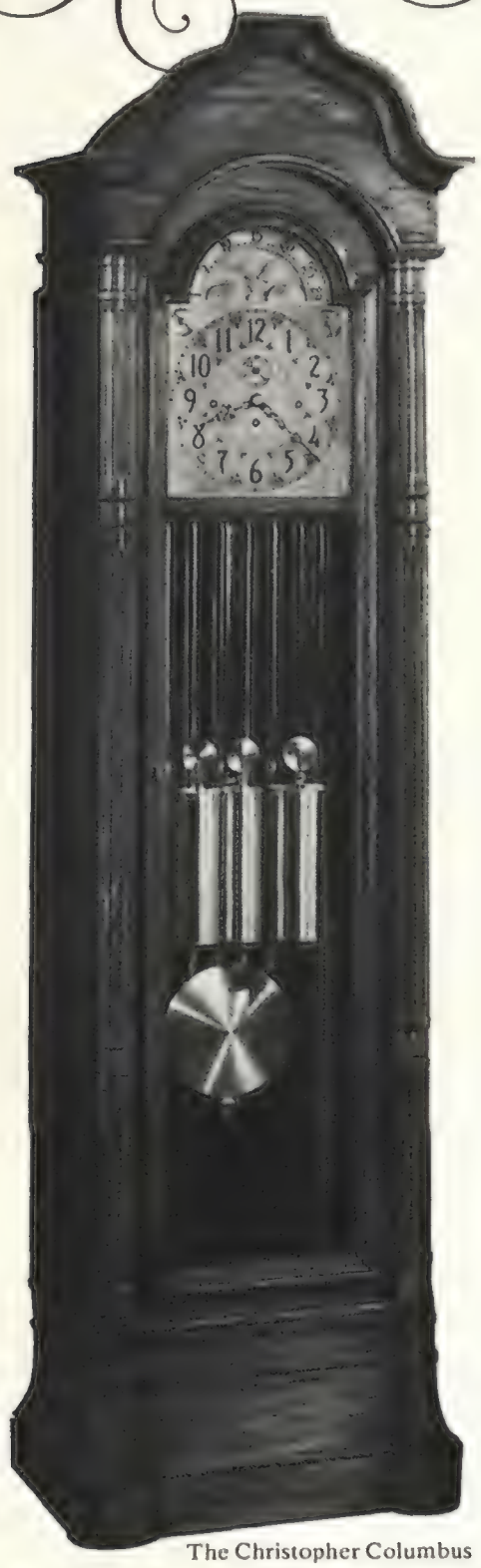

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a new species to evolve from an old one, large groups of an animal must live in areas large enough to allow reproductive isolation for each group. But, according to the biologists, no game reserve in the world is large enough for this to happen. (Wild land outside reserves was not considered, because it is disappearing so fast.) According to one mathematically minded purveyor of gloom, no mammal species has ever been known to evolve on an island smaller than Madagascar (SMITHSONIAN, November 1978), which at 600,000 square kilometers is ten times the size of any national park in the world. The biologists are saying that unless the situation changes there will be no new large vertebrates on this planet.

And the news gets worse. The game reserves are not large enough to support the numbers of animals some present-day species need to survive. All species need enough genetic diversity to be able to adapt to changing conditions, a sort of microevolution. Some of the large animals we love best, living in the best-managed parks in the world, may face inexorable extinction.

Finally, the populations of some animals are now so small that unavoidable inbreeding can only result in genetic deterioration. Thus we begin to see tigers with cataracts and tuskless elephants. This deterioration, too, can lead ultimately to extinction.

The conference even came up with some figures about what we can expect. For East Africa's national parks, the prediction goes as follows: about 11 percent of their large mammal species will be gone forever in 50 years. In 500 years nearly half will have vanished.

By the turn of the century—just a couple of decades away—only 1.5 percent of the Earth's surface will be game reserves and national parks, which could mean an eventual loss of some 3.5 million species of animals and plants.

Careful breeding of rare populations in captivity, such as the work being done by the National Zoo and others, can help, but even if half the zoo capacity of the United States were used for this purpose, only about 100 species could be saved. I once asked Dr. John Eisenberg, who directs the National Zoo's research in these matters, why he played King Canute in the face of such an awesome tide. "Why?" he said. "It's an existential thing. You just do it."

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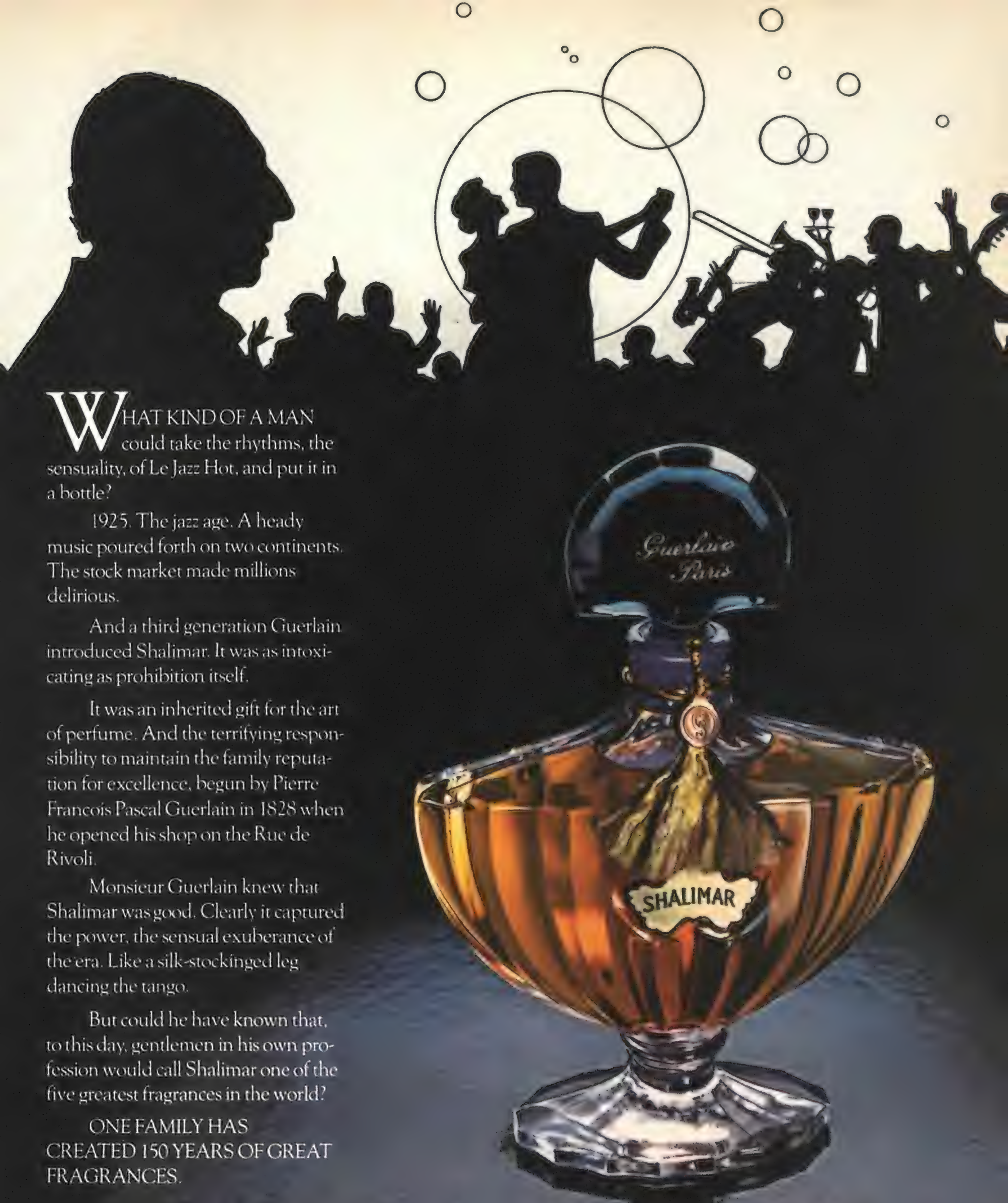

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Atlantis temporarily misplaced

In recent times fairly credible reports suggested that Plato's Atlantis story grew out of the death of the Minoan civilization on Crete, brought on by a huge volcanic eruption on the island of Thera, a major nearby Minoan outpost. The Minoan fleet could have been wiped out by a huge tsunami resulting from the eruption, or drifting clouds of volcanic ash could have wiped out the Minoans' agriculture. A recent congress of geophysicists and archaeologists (held, by the way, on a cruise ship in the Aegean Sea) has raised a few problems with the theory.

The Minoan fleet could have weathered the tsunami, if it were at sea. The amount of ash found on Crete may have helped, not hurt, Minoan agriculture. But worse, there seems to be a 50-year gap between the Thera eruption and the sudden collapse of Minoan civilization. All hands were, according to *Nature* (Vol. 275, No. 5678), pretty certain there was a connection between the events but just what still remains to be seen.

End of a metaphor

We have plenty of phrases to describe the impossible, such as when hell freezes over. But if your associates ever tell you that you've had an idea that will go over like a lead balloon, you should smirk and take the idea to a higher court.

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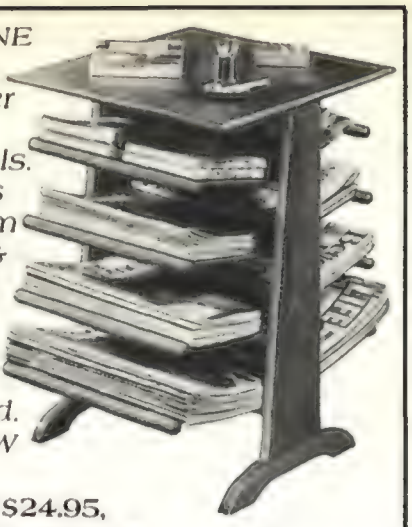

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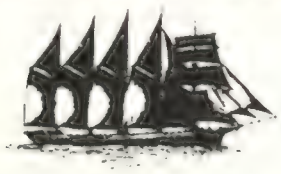

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with helium. The cube-shaped balloon rose a few yards off the ground, ripped its sheath and fell to the ground. The round one flew about a mile. And the third, shaped like a watermelon and the only one with a cedar-wood skeleton, was last seen heading out to sea.

This blessed (and predictable) union

Predicting what's going to happen in a marriage is something even the most foolhardy marriage counselor avoids, but biologists step into this arena with confidence. At least Wanda K. Pleszczynska, of the University of Ottawa, did.

Each spring, in the short-grass prairie lands of the Dakotas, some very striking birds called lark buntings arrive. The males come first, establish territories and mate with females who blow in over a nine-day period starting a week after the males. Some of the females arriving, on the average, on days five and six become secondary females to already mated males. What, wondered Dr. Pleszczynska, could be the cause of this?—especially since about 20 percent of the males remain bachelors and since she could find no difference among any of the males.

It must, she thought, have to do with what we would call the quality of the environment. Some males must choose superior territories. It's as though the earliest-arriving females picked up with males with good territories, some mid-arriving females chose to play second fiddle to another to live in a nice place, and late-arrivers simply had to settle for poorer neighborhoods.

And what makes a nice neighborhood? Dr. Pleszczynska studied everything from the abundance of food and the nearness of predators to the incidence of solar radiation (temperature) on the nest site. She found, surprisingly, that the temperature on the nest correlated most closely to the incidence of mate sharing—the cool-

Female (left), and male lark bunting.

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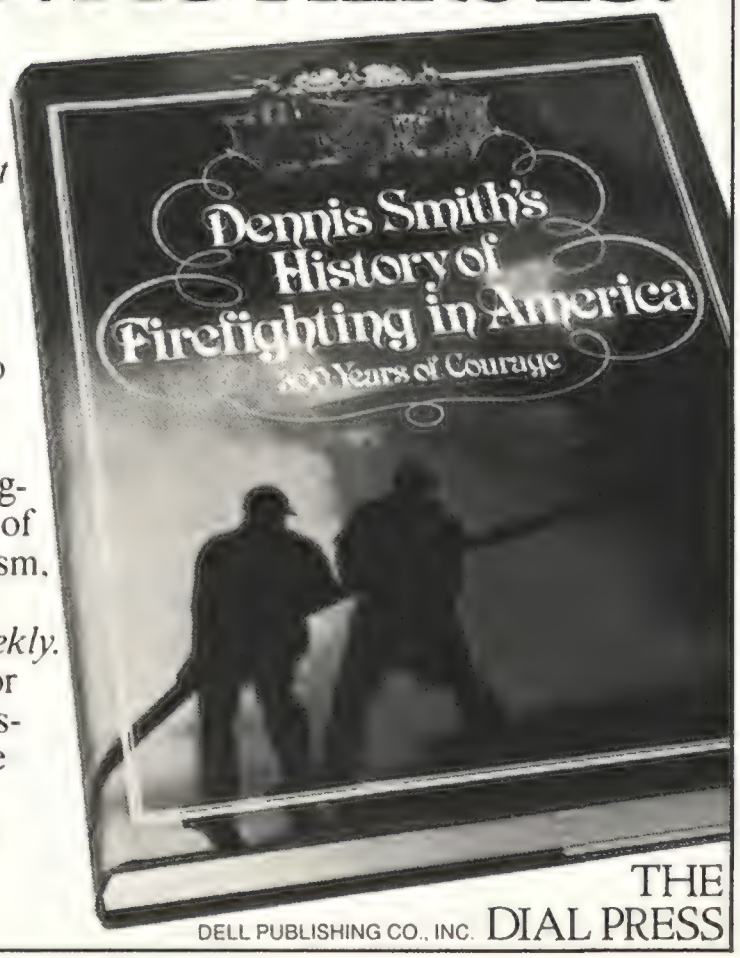

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er the better. (Naturally females know what they're doing: studies also showed greater fledgling success from the nests with less light.) Thus armed, she headed off to Colorado and measured light-incidence in lark bunting nesting sites. Her predictions about plural unions there were correct 28 out of 31 times.

This ability to predict the mating habits of lark buntings is probably fairly low on the scale of Earth-shattering scientific breakthroughs, but it is gentle science, reminding us that we all do relate to the sun in subtle ways.

The benefit of being short

If one is not a frog, it takes a certain leap of empathy to agree with Frank Sinatra when he sings, "It's not that easy bein' green." On the other hand, tall people should be able to empathize quite easily with the difficulties in our society of being short. And the following report from *The Futurist* (Vol. 12, No. 4) should make such empathy easier for tall people, if not actually give them reason to worry about their own status in a changing world.

Small size is of considerable benefit to mountain climbers, among other athletes. Muscle power increases as the square of increase in height, while weight increases as the *cube* of increase in height.

There is also statistical evidence that shorter people lead longer lives than tall people. In an analysis of 263 recently expired "famous people," those over 6 feet lived an average of 73 years; those less than 5 feet 8 inches lived 82 years.

Tall people, furthermore, are economic and ecological burdens. Tall people eat more. That means we need to grow more food as our average stature increases. That means more pesticides, chemicals, wrappers, fuel—and more pollution.

If society continues to favor tall people, it could, according to the report, add billions of dollars to the costs of running our society. How to reverse the trend? An interesting datum occurs in the magazine's report. Rats, deliberately undernourished during growth years (but given adequate vitamins and minerals), were shorter, lighter and lived 50 percent longer than usual. The good news, then, unless you happen to coach a basketball team, is that you now have overwhelming moral support in banning teen-agers' raids on the refrigerator.

—James K. Page jr.

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The Secretary introduces nine of our museum directors, each with an example from the collections. From left: Mr. Ripley, Marvin Sadik, Mel Zisfein, Al Lerner (in front) and Tom Lawton, Theodore Reed, Porter Kier, Otto Mayr, John Kinard and Lisa Taylor.

Around the Mall and beyond

Smithsonian museum staffers need only glance at the photograph above to realize that if the Victorian Garden opens up and swallows that extraordinary group of people and objects, there goes the old job. For here are gathered most of the directors of our museums, along with valued items from the various collections, with Secretary Ripley in attendance.

Why? Garden party? High-priced flea market? Wrong. The event, on a bright, warm autumn afternoon, was the filming of a 30-second spot (as we Madison Avenue sorts call it) to bring the good news of the Smithsonian to all those great people out there in TV land.

The results of the filming will be seen, if all goes well, soon after you read this. The idea is that the Secretary will introduce the Smithsonian "family" of museums to us listeners and invite us over.

The filming was rather festive, for never before had the whole Institution tried such a thing, and the participants caught the spirit. Mr. Ripley ran through his lines and stepped off his stage business, (as we Broadway types call it). Cameramen fiddled with exposures. Audio people fussed with mikes. Museum directors chatted about each other's displays and basked in the sun. "Just like Show and Tell," remarked Porter Kier of the Museum of Natural History, standing nonchalantly beside a dinosaur femur.

John Kinard of the Anacostia Neighborhood Museum agreed. He had brought a placard of the poem "Broke" by Langston Hughes. Mel Zisfein of the National Air and Space Museum held up his model of Jacqueline Cochran's Northrup Gamma as if he'd like to try it out, and inadvertently backed into the cigar store Indian that Otto Mayr of History and Technology had produced. "Oops, sorry," said Mel—not to Otto, but to the Indian.

Lisa Taylor of the Cooper-Hewitt Museum in New York told one of the Public Affairs persons that the well-polished Studebaker which had been borrowed from the Silver Hill facility for the occasion was a 1948 "Champion," but that

she really didn't know much about cars. Tom Lawton of the Freer gingerly cradled his 17th-century Japanese Arita plate and talked with Al Lerner of the Hirshhorn, who hovered protectively around Henry Moore's *Reclining Figure No. 4,* and with Marvin Sadik of the National Portrait Gallery who was adjusting the easel holding the Edward Harrison May painting of Isaac Singer of the sewing-machine company.

Ted Reed of the National Zoo explained what was going on to *his* exhibit —the only live one—a friendly corn snake. Ted regards "Corny" as his office snake and likes to include him (her? I forgot to ask) on little institutional duties like TV appearances. Corny seemed to find it was all pretty confusing, but was happy with Ted's sleeve to slide up inside and *Reclining Figure No. 4* to investigate.

"Shall we go through it one more time, Mr. Ripley?" asked the director.

"That's a pretty good idea," agreed Mr. Ripley.

"Quiet, Corny," admonished Reed.

". . . a sauropod, actually," said Kier.

"Honey, please don't kick the tripod," said a photographer mildly to a small girl.

". . . and Howard Hughes flew it across the country," said Zisfein.

"Could all you onlookers please step back?" said an assistant director.

I did so, and barely missed destroying a Victorian Garden shrub: *Buxus sempervirens cv.* suffruticosa buxaceae, for the 400 million readers who care.

A lady sightseer strode firmly through the set while the cameras held their breaths. She had come all the way from Cleveland to see the Garden, and she wasn't going to be put off by a lot of nonsense. Government workers waiting for a bus on Independence Avenue lined the ironwork fence and giggled. Henry the mockingbird erupted with a long melodious complaint about cluttering up his turf with dignitaries. A child asked a shrill question and was shushed.

Cameras suddenly hummed discreetly. "The Smithsonian Institution," said Mr. Ripley, "is not one museum but 13. . . ."

We're really going TV mad here. On Wednesday the 13th of this month, at 8:00 P.M. Eastern Standard Time, the Public Broadcasting Service will come up with *Place of Dreams.* It's a one-hour documentary about the National Air and Space Museum produced by Peter Vogt & Associates, Inc., and it's a beauty—a splendid statement on the 75th anniversary of the Wright Brothers' historic flight (pp. 36-46) and a grand Christmas present.

I saw a screening of the film and was moved and delighted with its capturing of the essence of manned flight as well as of the museum. The narration is by actor Cliff Robertson (who flies antique planes). I recalled having seen him being guided around Air and Space some months ago. I tried to produce my best profile for him (neither one is exceptional, I'm afraid) and strike meaningful poses, but no word has come yet from the biggies out on the Coast.

The September mention of fly-powered planes in the National Air and Space Museum drew enough flak from readers to shoot down a squadron of the things.

I took cover to escape the flying shrapnel and while cowering I received a letter from Mr. Don Emmick, design specialist

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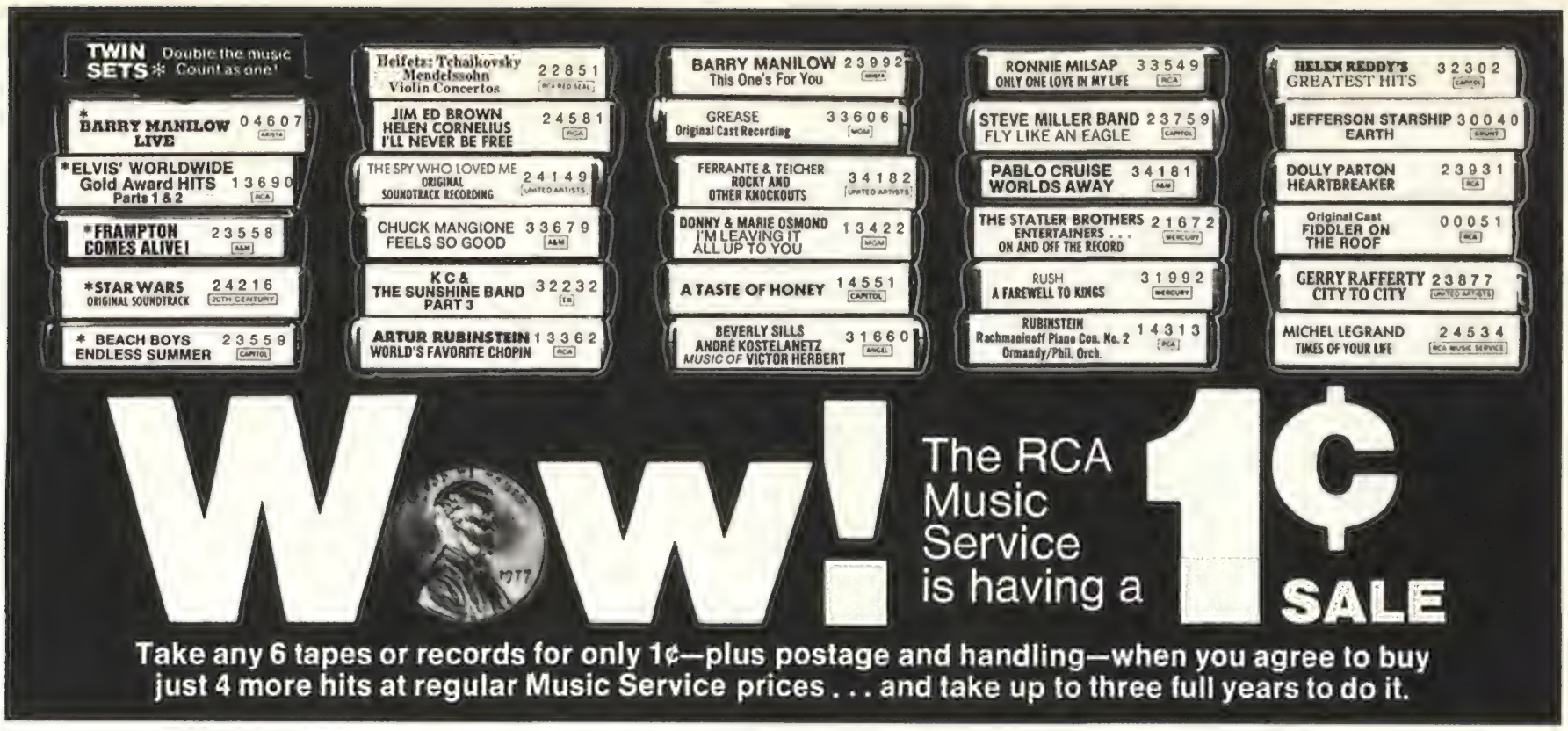
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of the Vought Corporation of Dallas. I am raising my head from my foxhole to write two sentences to the effect that this aeronautical engineer has studied and built fly-powered planes for some time, that he has developed the Emmick QFC (Quick Fly Change) which allows one engine to be substituted for another—the old one apparently being set free—and that a good-size Washington state fly can develop 0.7×10^{-6} horsepower (a little less than one-millionth of a horsepower), lift a plane over a two-story apartment building and set an endurance mark of five minutes. Moreover, the plane designed by Emmick for gathering these data was a copy, in miniature, of the Langley Aerodrome Number 5 of 1896, which hangs in the Air and Space Museum (p. 46) and was among the highly successful models that led Professor Langley to try the unsuccessful manned flights of exactly 75 years ago, as reported in detail on pages 36-46.

There. Exactly two sentences—a little long, maybe, but two. Now, back to the old foxhole, never again to mention those wretched little devices.

Our article describing the first month of manned flight, by Dr. Tom Crouch, reminded me of a news story I read last summer dealing with the finding of what might be an original Wright plane in a barn in France. I called our resident aviation historian, Charles Gibbs-Smith, who probably knows more about the Wrights than their pet cat did. He thinks the find is probably, basically, a Wright Type A of 1908-1909, but wrecked and rebuilt to the verge of anonymity.

Claudia Oakes, of Air and Space, is putting together a special Wright brothers exhibit which opens early this month, under the famed Wright Flyer in the Milestones of Flight gallery. Among the displays are some scraps of wallpaper with regular designs on one side and penciled doodles on the other. Claudia says the Wrights were apt to sketch visual ideas on whatever came to hand, often ripping away a corner of wallpaper for their scribbles. Claudia says the sketches don't tell much, because the brothers were careful not to draw up big ideas for someone else to find, but were the sort of marks you might expect: "Hey, Wilbur, "let's try *this*. . . ." "Okay, Orville, but it'll never get off the ground unless we add *this*. . . ." Hard on the house.

—EDWARDS PARK

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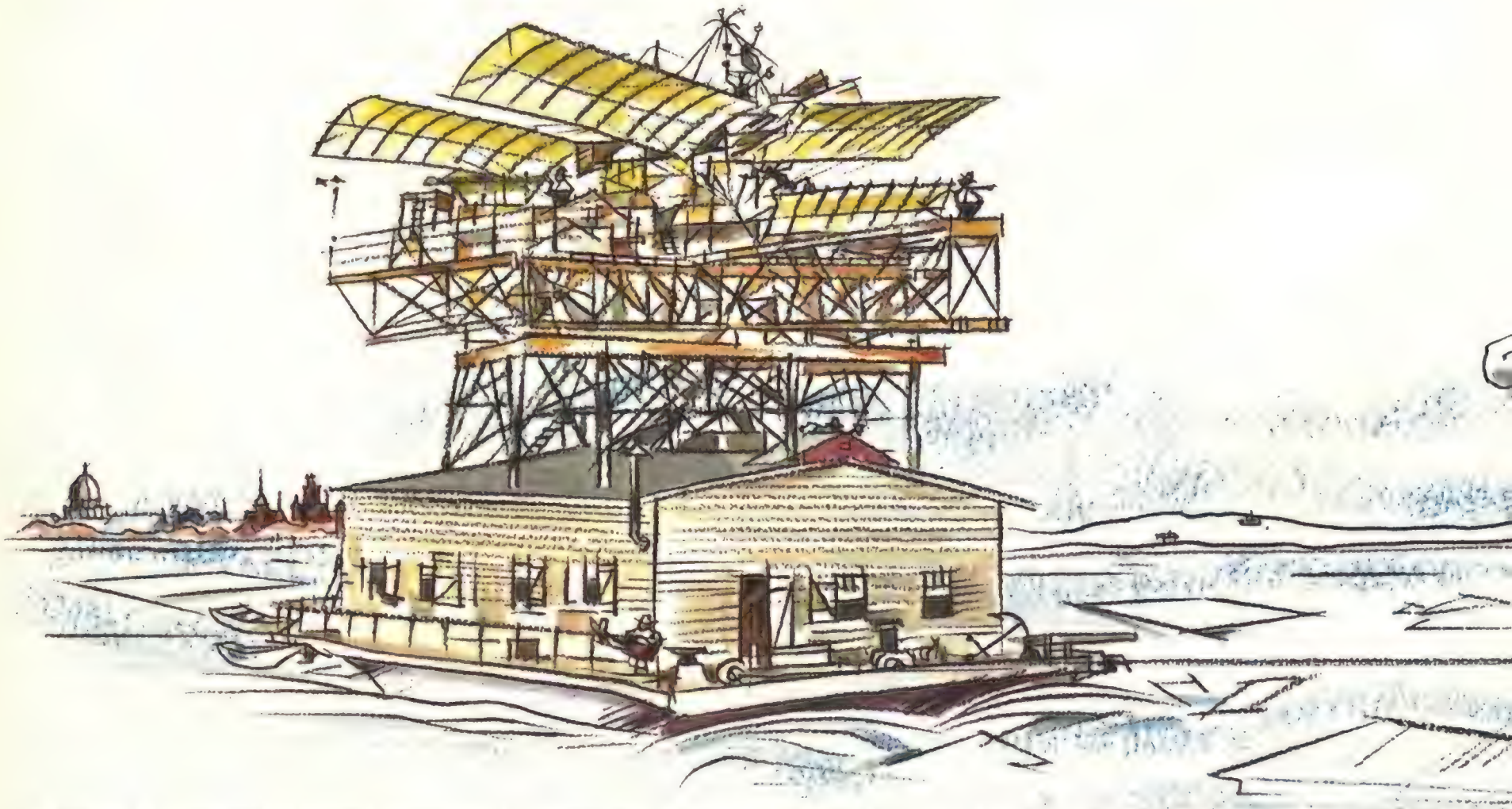
By Tom Crouch

December: diamond anniversary of Man's propulsion skyward

The sage of the Smithsonian did not get off the ground, and the press hooted. Then, quietly, two 'nobodies' began to fly

Dr. Crouch is associate curator of astronautics at Smithsonian's National Air and Space Museum. Robert Osborn was the subject—and artist—for an article on airplanes in December 1976. His wartime cartoons helped teach safety to U.S. Navy pilots.

Shortly after 2:30 on the afternoon of December 8, 1903, the steam tugs *Bartholdi* and *Joe Blackburn* pulled away from a wharf at the foot of Eighth Street in southwest Washington with a large, flat-bottom houseboat in tow. The two vessels moved downstream through blocks of floating ice to an anchorage off Arsenal Point, near the confluence of the Potomac and Anacostia rivers. A midday calm had given way to winds gusting up to 20 miles an hour—hardly ideal conditions for workmen struggling to bolt a cruciform tail and four large wings to a steel-tube fuselage mounted on a catapult on the roof of the houseboat.



Langley's houseboat is towed down the Potomac while workers assemble Great Aerodrome on catapult.

Charles Matthew Manly was obviously in charge of the operation. For the past five years Manly had served as chief aeronautical assistant at the Smithsonian Institution. He took particular care with these final preparations, for he was about to trust his life to the ungainly machine resting on the launcher. If the events of the next few hours unfolded as planned, Charles Manly would become a very famous man indeed—the pilot of the world's first successful powered, heavier-than-air flying machine.

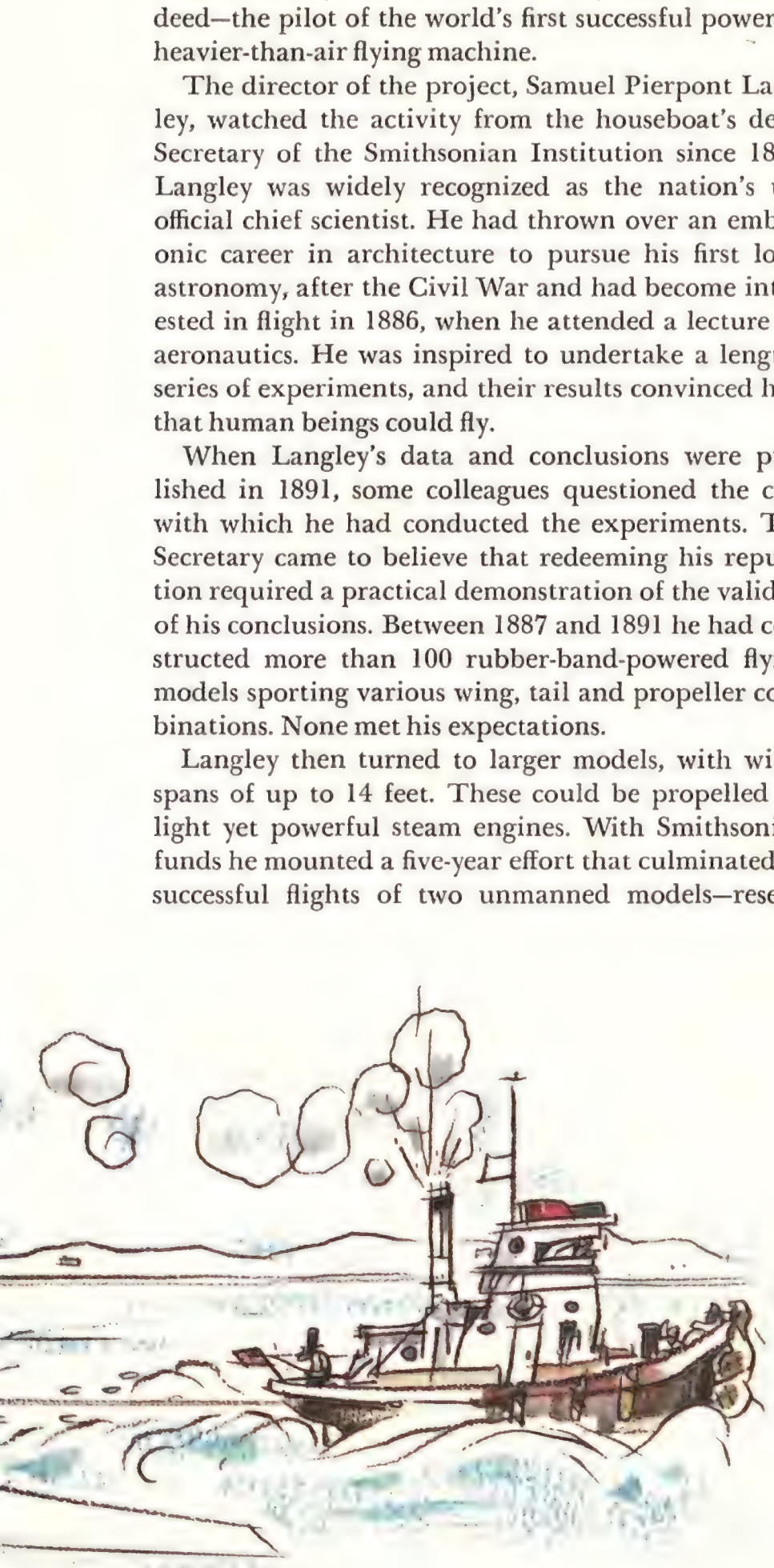
The director of the project, Samuel Pierpont Langley, watched the activity from the houseboat's deck. Secretary of the Smithsonian Institution since 1887, Langley was widely recognized as the nation's unofficial chief scientist. He had thrown over an embryonic career in architecture to pursue his first love, astronomy, after the Civil War and had become interested in flight in 1886, when he attended a lecture on aeronautics. He was inspired to undertake a lengthy series of experiments, and their results convinced him that human beings could fly.

When Langley's data and conclusions were published in 1891, some colleagues questioned the care with which he had conducted the experiments. The Secretary came to believe that redeeming his reputation required a practical demonstration of the validity of his conclusions. Between 1887 and 1891 he had constructed more than 100 rubber-band-powered flying models sporting various wing, tail and propeller combinations. None met his expectations.

Langley then turned to larger models, with wingspans of up to 14 feet. These could be propelled by light yet powerful steam engines. With Smithsonian funds he mounted a five-year effort that culminated in successful flights of two unmanned models—resembling giant dragonflies—for distances of up to 4,200 feet in May and November 1896. These flights silenced those skeptics who had questioned the quality of Langley's experimental data. Moreover, newspapers and popular magazines reported the flights and turned the Secretary into a celebrity. Thousands felt that the age of flight was close at hand and that Langley would inaugurate it.

Immediately after those 1896 flights of his models, the Secretary announced that he had decided to halt aeronautical experiments. In reality, he had begun a serious search for funding. By 1898, with the assistance of his friend Charles Doolittle Walcott of the U.S. Geological Survey, Langley obtained $50,000 through the War Department's Board of Ordnance and Fortification, the agency charged with the development of new weapons.

Langley aimed at enlarging the size of his successful models roughly four times with as few changes as possible. The unmanned craft had been inherently stable, a requirement for all free-flying model aircraft. Langley, who feared that a pilot would be unable to cope



Charles Manly, pilot, and Dr. Samuel P. Langley.

Illustrations by Robert Osborn

Manly, stripped to union suit, enters cockpit . . .

. . . flips into the Potomac after being launched . . .

with rapid shifts in the winds aloft, planned to retain this stability in the Great Aerodrome. The craft would include a movable tail to control altitude, and a rudder, but it would normally fly straight and level. Once the machine had provided the minimum demonstration, Langley planned to devise a suitable control system for it.

In one area, Langley's engineers broke new ground. The steam power plants that had propelled the small craft would be replaced by an internal combustion engine. A one-quarter-scale model was built to test the use of this power. For the Great Aerodrome, Stephen M. Balzer, a New York machinist and instrument maker, developed a five-cylinder rotary engine that operated intermittently, generating only four hp. Manly took delivery of the power plant and transformed it into a water-cooled radial, producing an impressive 52 hp.

By the fall of 1903 the old models had been successfully reflown, and the new one-quarter scale machine had made a brief flight. On October 7, the crew was ready for a manned launch. After a preliminary engine run-up, the Great Aerodrome shot down the rail—and fell into the water "like a handful of mortar," in the words of one Washington reporter. Manly and Langley laid the blame on the catapult mechanism. They repaired the aircraft and modified the launcher for another attempt.

Final preparations for the second test flight on December 8 must have been particularly tense for Langley who, at the age of 69, stood at the pinnacle of his career, and who had chosen to expend 50,000 of the taxpayers' dollars and an additional $20,000 in Smithsonian private funds on a project that many felt was doomed. A small group of invited witnesses joined Langley on board the houseboat. Dr. F. S. Nash, an Army contract surgeon, was present in case an emergency should arise.

By 4:30 the winter sky was darkening rapidly, and shifting gusts made it impossible to keep the boat heading into the wind. In a hurried conference, Langley and Manly agreed that the test could not be postponed. It might be weeks before the weather improved, and funds were not available to allow for such a delay.

Manly quickly stripped off his outer clothes. He would make the flight dressed in a union suit, stockings, light shoes and a cork-lined jacket. Whether he succeeded or failed, he faced the prospect of a landing in the frigid Potomac and he had no intention of being weighed down by heavy garments.

The young engineer stepped through the tangle of brace wires and struts into the small fabric-sided cockpit. He seated himself on a board facing the right side of the machine, his hands resting on two small wheels mounted on the right wall of the cockpit. These controlled the up-and-down motion of the tail and operated the rudder on the underside of the fuselage. Before Manly ran up the engine, the invited guests joined members of the Washington press corps in a number of small boats. These provided a good view and put them in position to offer assistance should rescue attempts be required.

. . . and, warmed by drink, produces well-chosen words.

Satisfied with the sound of the engine and the operation of the controls, Manly gave the signal for release at 4:45. He sped down the 60-foot track, felt a sharp jerk and immediately found himself staring straight up at the sky as his aerial steed flipped on its back and dropped into the water.

Manly hung from the cockpit sides with his hands and entered the water feet first. In spite of his precautions, he found himself trapped beneath the surface with the cork-lined jacket caught on a metal fitting. Ripping the garment off, he struggled through the maze of broken wood and wire only to reach the surface beneath an ice block. He dived down, finally emerging in free water some distance from the floating wreckage, just in time to see a workman plunge under the remains of the machine in a rescue attempt. Both men were quickly fished out of the water and carried to safety aboard the houseboat. Manly was uninjured but so frigid that Dr. Nash was forced to cut the clothing from his body.

Moments later, wrapped in warm blankets and fortified with whiskey, this genteel son of a university president startled the group by delivering a "most voluble series of blasphemies." Samuel Pierpont Langley's 20-year drive to develop a flying machine was halted.

The reaction to the disaster of December 8 was as immediate and harsh as Langley had feared it might be. Newspapermen, bitter over the Secretary's policy of secrecy, were little disposed to show mercy. A dramatic photograph showing the shattered aircraft falling toward the water appeared in the Washington *Evening Star*. Once considered the best hope for achieving flight, the machine was now dubbed "Buzzard" and "Mud Duck." Congressmen, ridiculing the expenditure of government funds on flying-machine projects, argued that a regiment of Langley machines "would not conquer the Fiji Islands, except, perhaps, by scaring their people to death."

On December 9, the morning after the Langley catastrophe, one of the men who would prove Langley's critics wrong boarded a train in Dayton, Ohio. Orville Wright faced a two-day journey to Kitty Hawk, a small fishing village and life-saving station on the Outer Banks of North Carolina. He carried with him new propeller shafts that would be fitted to another flying machine that had been conceived and constructed far from the glare of publicity that then surrounded Langley.

During the trip from Dayton, Orville had read the news stories of Langley's disaster. These accounts came as no surprise to him, for he and his older brother Wilbur had long believed that there was little hope for success with the Langley machine.

Still, both brothers must have felt a great deal of

sympathy for the older man. As Wilbur Wright recalled three years later, "The knowledge that the head of the most prominent scientific institution of America believed in the possibility of human flight was one of the influences that led us to undertake the preliminary investigation that preceded our active work. He recommended to us the books which enabled us to form sane ideas at the outset. It was a helping hand at a critical time and we shall always be grateful."

Sons of a United Brethren minister, the Wright brothers were members of an extremely close Midwestern family, and were far removed from the urbanity of Dr. Langley. Aged 29 and 25 in 1896, they were still family-bound. For several years of his young manhood, Wilbur, the elder, remained unemployed, a semi-invalid because of an ice-hockey accident. Orville, who left high school before graduation, had tried his hand at a variety of tasks, but had achieved little financial success.

Their second joint venture (the first was printing), the Wright Cycle Company, provided a reasonable income and an outlet for their mechanical interests, but left the brothers with a great deal of free time, particularly during the winter.

The year 1896 was a crucial one for the brothers. Magazines and newspapers had been carrying reports of men taking to the skies. In Germany, Otto Lilienthal was concluding his sixth successful season of trials with a series of manned hang gliders. By the time of his death in a glider accident in August of that year, he had convinced most obstinate doubters that human beings could fly on wings of their own construction.

Octave Chanute, a world-famous civil engineer, was emulating Lilienthal that summer at an aerial-experiment station on the Lake Michigan sand dunes near Miller, Indiana.

Their interest whetted by published reports, the Wrights spent the next three years slowly absorbing the flying-machine and bird-flight literature available at home and in the local library. A letter to the Smithsonian Institution produced suggestions for further reading. Correspondence with Chanute cemented a friendship with this man who was to become their chief confidant.

Though the aeronautical literature of the period was a confusing mix of speculation and theory, one of the early marks of the Wright genius was their ability to winnow a few useful ideas from this contradictory morass. It was clear to them, for example, that the flight tests of manned gliders, as advocated by Lilienthal, offered a more rational path to success with a powered machine than did the use of scale models. Moreover, they believed that the practical success of Lilienthal guaranteed the accuracy of the air-pressure tables that he had developed for use in planning the wing-surface area of a flying machine. Chanute had suggested the most efficient aircraft structure in his classic biplane glider of 1896.

More important than these bits of information, however, was the fact that their review of previous work in aeronautics enabled the Wrights to identify the most troublesome problem that had blocked the route to success for others—control.

The Wrights recognized the almost universal search for a system of automatic stability as a blind alley that had led and was leading virtually all other aeronauti-

Back in Dayton, the Wrights seemed to mark time.

Brothers made crucial discoveries

cal experimenters, including Langley, astray. The brothers were resolved that their pilot would be in absolute command of the motion and attitude of his machine at all times.

It had long been recognized that the presence of a horizontal elevator would enable an aircraft to climb or dive, while a vertical rudder could be used to keep the nose of the craft pointed in the desired direction. The longitudinal, or roll, axis was another matter, however. Most of the inventors who had tackled the problems of flight prior to the Wrights saw such control as necessary only to correct for the rise or fall of wing tips struck by gusts. They assumed that the aircraft could be turned to the right or left by the action of the rudder alone.

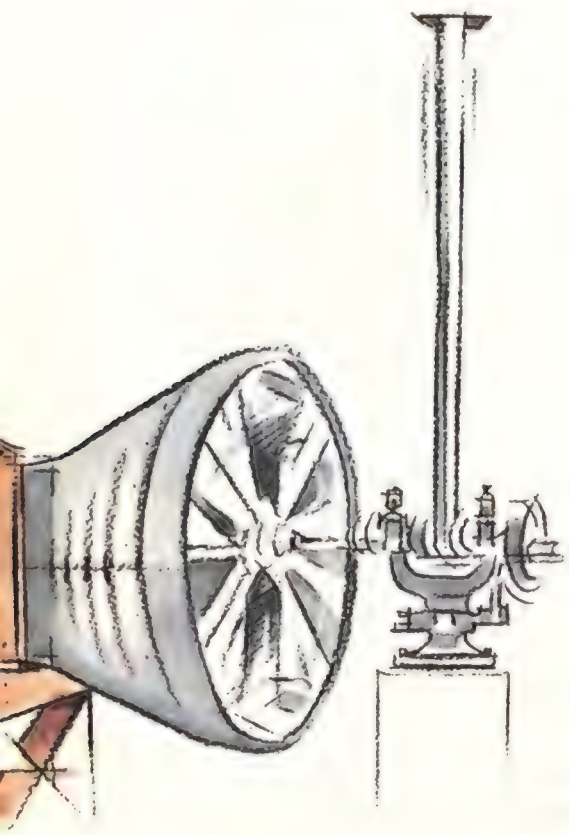
As experienced bicycle riders, the Wrights realized that bicycles and airplanes are not naturally stable platforms. Rather, the operator must maintain equilibrium or he will fall. Such a craft cannot negotiate a sharp turn simply by angling a front wheel or a rudder. In order to maintain balance, it is necessary to lean into the turn. In the case of the airplane this requires a dip of the wing tip in the direction of the turn. Thus the Wrights sought a method of dipping or raising either wing at will, whereas other experimenters searched for a device to counter such an action. This realization of the necessity for active longitudinal control set the two Daytonians apart from other flying-machine innovators.

Wing warping was the Wrights' answer. If a helical twist could be imparted to the wings, the shift in pressure would force one wing tip down and the other up. They first applied the technique in a small kite built during the summer of 1899, then planned the construction of a man-carrying device embodying the same principle.

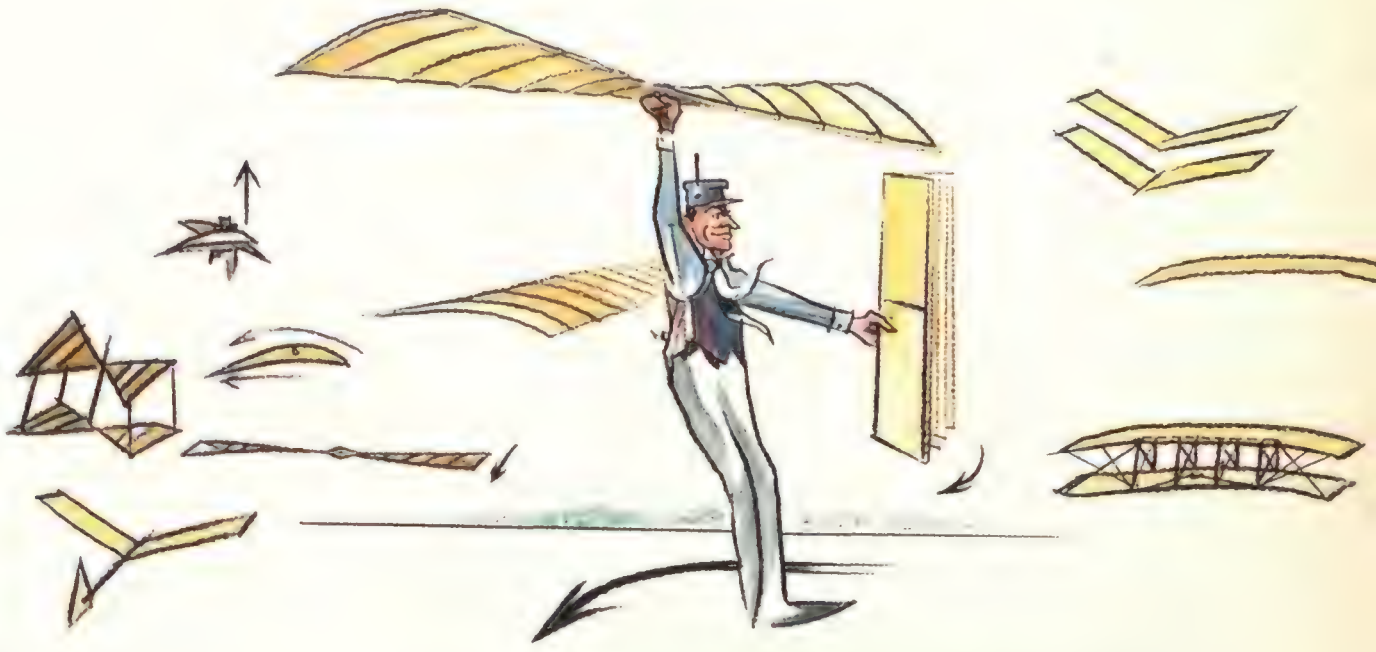
As they prepared to enter the active phase of their work, the Wrights were only four years from ultimate success. Lilienthal, Langley, Chanute and others had struggled unsuccessfully for decades to develop a powered flying machine. The Wrights would accomplish the task in seven years, only four of which were devoted to active trials.

The wing-warping system allowed the Wrights to operate gliders with much larger wingspans than those of other designers. The performance of these craft astounded Chanute and everyone else who visited the camp near Kitty Hawk. Yet the Wrights were so dissatisfied at the close of the 1901 season that they seriously considered abandoning aviation. They had failed to achieve the results predicted by their calculations. Ultimately unwilling to walk away from the puzzle, they undertook a series of wind-tunnel tests in order to check the validity of the Lilienthal air-pressure tables on which they had based their preliminary performance computations.

This episode is the clearest example of the intuitive engineering genius that the Wrights brought to bear on the problems of flight. While the renowned Langley clung to cut-and-try empiricism, the self-educated Wrights broke entirely new ground with their home-made wind tunnel. Their 1902 glider, which embodied the corrected wind-tunnel data, performed spectacularly and enabled the Wrights to modify their control system. They realized that they stood very close to final success and turned their attention to the propul-



with their novel wind tunnel.



Wrights controlled tilt of wings by warping them.

sion system. Unable to locate a suitable lightweight engine at a reasonable price, they designed a four-cylinder power plant. Constructed by Charles Taylor, a mechanic in the bike shop, the engine was in many respects quite primitive, producing roughly 16 hp when first started, but dropping to about 12 hp after a minute or so of operation.

In the matter of propellers, the Daytonians were far in advance of their fellows. The brothers were the first to understand that an aircraft propeller is not an "air screw" in a literal sense. Rather, it is a rotary wing, the lift of which draws the airplane forward.

With their new engine and propellers on hand, and work on the structure of the large aircraft nearing completion, the Wrights began planning for their fourth season at Kitty Hawk. This year, 1903, they would expand their camp with the addition of a new shed to supplement the original building constructed in 1901. For the first time, they would be flying two machines, the 1902 glider having been refurbished for practice flying while the powered machine was being put together.

The brothers arrived at their Kitty Hawk camp at 1 P.M. on September 25, 1903. They had originally chosen this site after correspondence with Chanute, U.S. Weather Bureau officials and local residents. Attracted by reports of steady winds to keep their gliders aloft, hills from which to launch them and isolation that would permit them privacy, the brothers were to develop an affection for the self-reliant "Kitty Hawkers" (as they called them).

The Wright camp was situated just north of the Kill Devil Hills, a range of sand hummocks that derived its name, according to one account, "because sailors say it is enough to kill the devil to navigate this part of the [Albermarle] sound." The Wrights' only immediate neighbors were the crew of the Kill Devil Hill Life Saving Station, located roughly a mile from their camp. The closest population center, the small village of Kitty Hawk, lay some four miles to the north. Kitty Hawk boasted its own life saving station, a U.S. weather bureau, a post office serviced by a small mail boat from Manteo, and scattered houses.

But living conditions on the Outer Banks shocked the brothers. Sand sifted through the smallest cracks. Mosquitoes, as Orville reported in 1901, "chewed us clear through our underwear and socks. Lumps began swelling up all over my body. . . . Misery! Misery!"

On arrival in 1903, the brothers discovered that a storm had lifted their original hangar from its foundations. Having just repaired it and completed a second shed, they were promptly assaulted by a ferocious gale. By November, cold weather had set in. In a letter to his father and sister, Wilbur commented that "In addition to . . . 1, 2, 3 and 4 blanket nights, we now have 5 blanket nights, & 5 blankets & 2 quilts. Next come 5 blankets, 2 quilts & fire; then 5, 2, fire & hot water jug. . . . Next comes the addition of sleeping without undressing, then shoes & hats, and finally overcoats."

A makeshift stove constructed from a carbide can provided heat, but filled the building with smoke so thick that when the brothers sat down to eat, the soot on the ceiling began dropping onto their plates. They added legs, chimney and dampers to the stove, which eased the situation.

In spite of the difficulties, the Wrights forged ahead with trials of the 1902 glider and worked to complete the powered machine. By early November, as Manly and Langley were waiting for a break in the weather over the Potomac, the brothers were encountering problems with a rough-running power plant and damaged tubular propeller shafts that eventually forced Orville's quick return to Dayton to supervise work on a new set of solid spring-steel shafts.

Finally, on December 14, preparations seemed complete. The toss of a coin determined that Wilbur

Orville, rushing new shaft to Kill Devil (at far left, Osborn gets literal) Hills, had read of Langley failure.

would have the honor of the first full trial of the powered machine. The craft lifted off on this occasion, but nosed up too sharply and fell to earth, causing slight damage. Three days later, with repairs complete, they were ready for a second trial.

The morning of December 17 dawned cold. The puddles of standing water had frozen overnight, and a 27-mile-an-hour wind was blowing from the north. Hoping that the wind might abate, the brothers enjoyed a leisurely breakfast and remained indoors until 10 A.M., when they decided to make the trial.

They hung out a signal to summon the volunteer ground crew from the Kill Devil Station. The Wrights then maneuvered four 15-foot sections of two-by-four, the tops of which had been sheathed in metal, to a level area some 80 feet west of their buildings. The aircraft, which would ride along this takeoff rail on a truck constructed of two modified bicycle hubs, was then taken out of the hangar and prepared for flight.

Work in the biting cold was difficult, requiring frequent retreats to the comfort of the carbide-can stove, but by the time John Daniels, W. S. Dough and A. D. Etheridge arrived from the Kill Devil Station, preparations were nearing completion. Two visitors, W. C. Brinkley from Manteo and young Johnny Moore from Nags Head, accompanied the lifesavers. Robert Wescott, who had remained on duty at Kill Devil, watched the proceedings through a spyglass, while four miles away Captain S. J. Payne, chief of the Kitty Hawk Station, was also training his telescope on the men clustered around the plane.

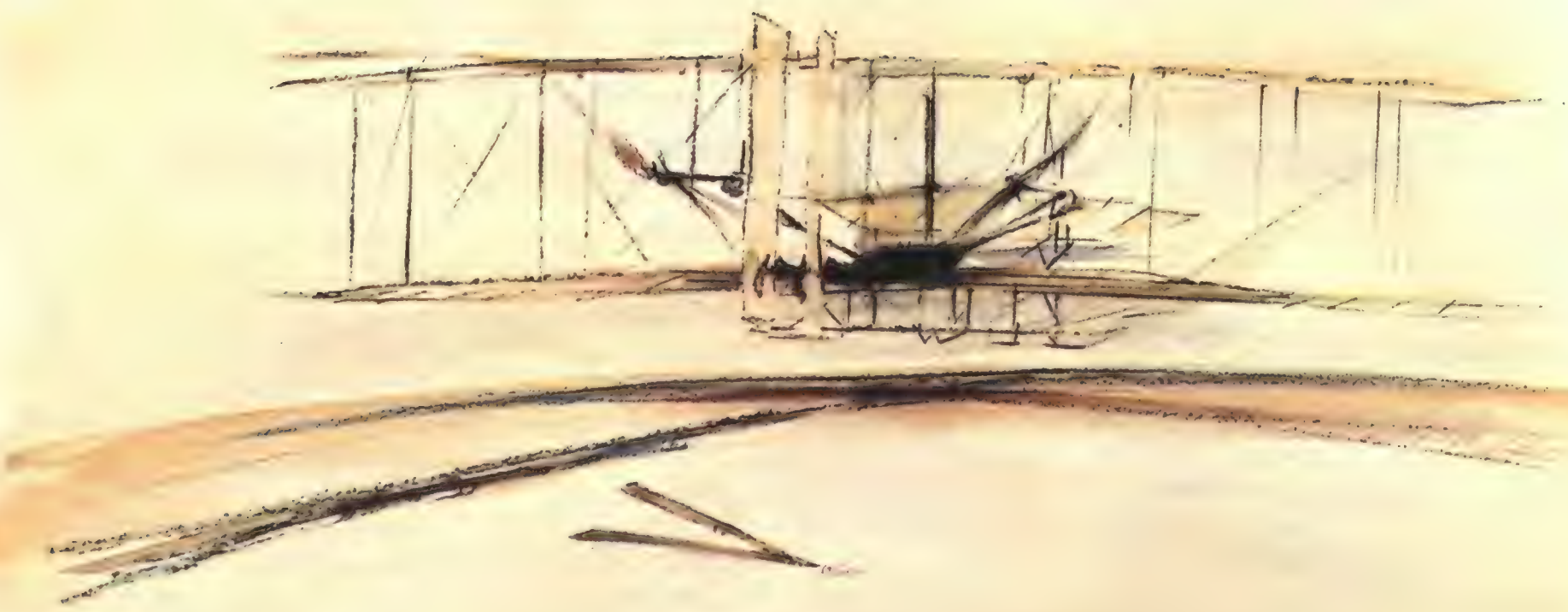
At about 10:30 A.M., a few drops of gasoline were pumped into each cylinder. The coil box for starting was attached. The engine was allowed to run for several minutes while Wilbur and Orville discussed the situation. One of the witnesses years later recalled that "we couldn't help notice how they held on to each other's hand, sort o'like they hated to let go; like two folks parting who weren't sure they'd ever see each other again."

Finally, the two shook hands and Orville climbed into place beside the engine, prone on the lower wing with his feet braced against a board tacked to the trailing edge. His hips lay in a cradle free to move from side to side. To bank to the right, or to raise the left wing tip, he would shift the cradle to the right. This action would impart the correct warp to the wings and turn the rudder to the proper angle. With his left hand Orville grasped the elevator level that would, he hoped, control the rise or fall of his machine.

His right hand operated a second lever that had only three positions. In the "off" position, it was pointed slightly to the right over the leading edge. When pushed straight forward, it opened the cock connecting the half-gallon gasoline tank to the engine and permitted starting. When Orville was prepared to begin the flight he would pull the lever to the left, slipping a line that bound the aircraft and the truck to the rail and permitting them to move forward. At the same time, a stopwatch, the anemometer that served as an airspeed indicator, and the engine-revolution counter were set in motion. The lever was not a throttle, for the engine had only two speeds, on and off. Upon landing, however, the pilot would shove the control to the right to shut off the gas and kill the engine.

With Orville in place, Wilbur walked to the cluster of witnesses. Daniels was dispatched to man the camera pointed at the end of the rail. The elder brother now suggested that the men "not look too sad, but . . . laugh and holler and clap . . . hands and try to cheer Orville up when he started." Wilbur then took up a position by the right wing tip, replacing a low wooden bench that had supported the wing up to this point.

At 10:35 Orville moved his right hand toward his left and the craft began to move slowly into the 27-mile-an-hour wind. Wilbur had little trouble keeping up with the slow forward speed of the machine. As it rose into the air after a 40-foot run, Daniels clicked

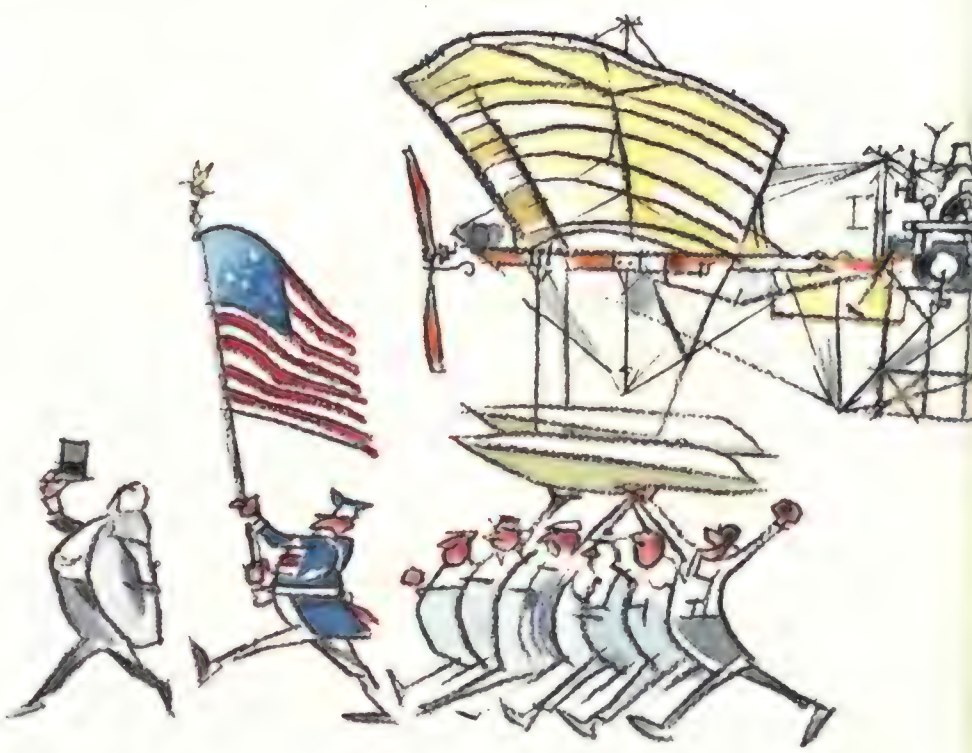


December 17, 1903: at an isolated beach a man flew. This is Osborn's serious representation of the event.

the shutter just as everyone broke into cheers on cue.

The airplane rose and fell erratically as it sailed forward. After 12 seconds of flight it struck the sand at a point about 120 feet from where it had left the rail. It hadn't taken very long and the machine hadn't traveled very far, but it had undeniably risen from the ground and flown forward under its own power, landing at a point as high as that from which it had taken off. On this isolated North Carolina beach, a man had flown.

The small crew carried the aircraft back to the rail for a second trial, then retired to the shed for a bit of warmth. At 11:20 the group emerged from the building and Wilbur took his place on the machine for a flight 75 feet longer than the first. Twenty minutes later Orville made his second trial, which lasted 15 seconds and covered a little more than 200 feet. At about noon Wilbur tried again, turning in the best performance yet, a spectacular 852 feet in 59 seconds.



The men carried the airplane back to camp. As they clustered around it, a gust of wind caught the machine and sent it tumbling. Daniels went head over heels through the wood and wires, suffering severe bruises. When the airplane came to rest it was extensively damaged. Once the witnesses had helped drag the wreckage into the hangar, they returned to the station. One of them then raced down the beach toward Kitty Hawk. When he encountered Captain William Tate, in whose home the Wrights had lived during their first experiments, he was yelling excitedly, "They have done it! They have done it! Damned if they ain't flew!"

The Wrights ate an unhurried lunch, then strolled up to Kitty Hawk themselves, calling on old friends in the village to confirm the reports of their success, but not before sending a telegram to their father. The message, slightly garbled, was received in Dayton at 5:25 that evening:

> Success four flights thursday morning all against twenty one mile wind started from Level with engine power alone average speed through air thirty one miles longest 57 seconds inform Press home Christmas.
>
> Orevelle Wright

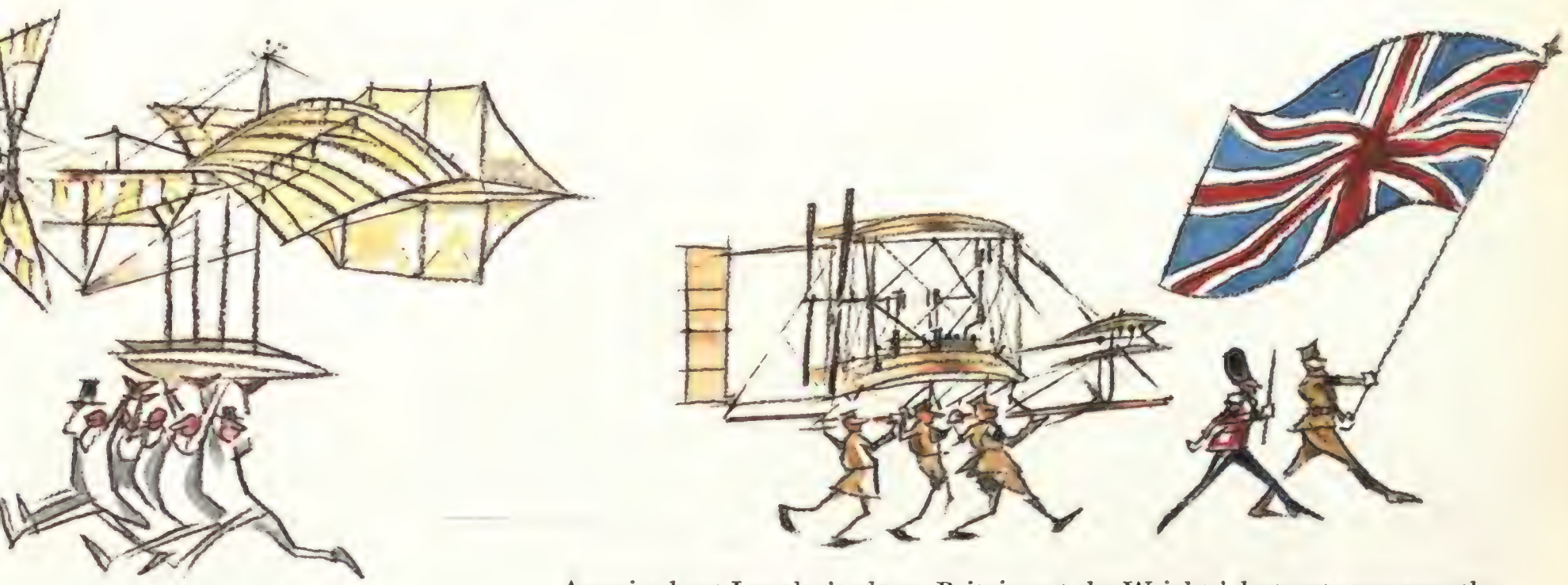
The two aircraft of December 1903 were to remain inextricably linked for almost 50 years. Following its final crash on December 8, efforts were made to pull the Langley Aerodrome from the Potomac mud. In so doing, the machine was completely smashed, only the engine remaining undamaged. With the funds left in the Aerodrome account, Manly ordered at least the fuselage refurbished. All parts were placed in storage in the hope that someday trials could be resumed. Following Langley's death in 1906, his old friend and successor, Charles Walcott, revived the dream of flying the Great Aerodrome.

In 1913 Walcott established the Langley Aerodynamical Laboratory at the Smithsonian. The new organization was designed to spearhead American theoretical flight research. Dr. Albert F. Zahm, a one-time friend of the Wrights who had become one of their bitterest enemies, was placed in charge of the new organization. Zahm inherited the Aerodrome and determined that the time had come to prove that the craft could have flown. Glenn Curtiss, who was at the time being sued by the Wrights for having infringed their basic aeronautical patents, was chosen to rebuild and test the Great Aerodrome.

Orville Wright can hardly be blamed for interpreting the Smithsonian's actions as a breach of ethics. Should the Aerodrome fly, Curtiss would be able to claim that the Wright machine had not been the first capable of flight with a man, thus winning an enormous advantage in court.

Curtiss did rebuild the airplane, incorporating a great many major and significant alterations reflecting the advance of aeronautics since 1903. The rebuilt and much altered Aerodrome did, in fact, make a number of short hops. It was later returned to the Smithsonian, where it was restored to the 1903 configuration and placed on exhibit. Smithsonian publications began to describe the Aerodrome as "the first aeroplane in . . . history . . . capable of flying with a pilot and several hundred pounds of useful load."

Wilbur Wright had died of typhoid in 1912, leaving Orville to fight the patent suits and defend their priority as the first to fly. Orville was naturally incensed



America kept Langley's plane; Britain got the Wrights', but not permanently.

by the Smithsonian's refusal to accept their valid claims to the invention of the airplane. As early as 1910, Walcott had made it apparent that the Institution had little interest in exhibiting the Wright 1903 machine. This rebuff, complicated by Walcott's later sponsorship of the Langley Aerodrome and the favoritism shown toward a business and legal opponent of the Wrights, guaranteed that the 1903 airplane would not find a home in the National Museum until amends had been made.

The original Wright Flyer was first rebuilt for exhibition at the dedication of new buildings at the Massachusetts Institute of Technology in 1916. It was exhibited periodically at aeronautical events until 1928, when Orville, convinced that the Smithsonian would not change its position on the priority of the Langley over the Wright machine as the first aircraft capable of flight, ordered the 1903 Flyer sent to England where it was exhibited for more than a decade in London's Science Museum, before being moved into underground storage for safety during World War II.

In 1942 Charles Abbot, Walcott's successor, was finally able to satisfy Orville as to the Institution's change of heart. Six years later the priceless 1903 Flyer was returned to the United States and given a place of honor in the Smithsonian Arts and Industries Building with a formal presentation on December 17, 1948 —11 months after Orville's death.

Visitors now enter the National Air and Space Museum through a gallery entitled "Milestones of Flight." The 1903 Wright Flyer, the world's first airplane, holds the central position (below), hanging suspended in the center of the area, surrounded by other air and space vehicles that have carried mankind on a journey begun at Kill Devil Hills. Nestled in an upper corner of the gallery, above the Flyer, is the fifth of Langley's steam-powered flying models. Both aircraft serve as reminders of the tragedy and triumph experienced by the first generation that took to the skies on fragile wings fashioned by the human mind and hand.

All's well that ends in the Smithsonian's National Air and Space Museum. Wright Flyer dominates scene; at the upper right is Langley's steam-powered model, Aerodrome Number 5. It flew successfully in 1896.

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Golden Cavendish

For all of the flavor and none of the bite...Borkum Riff.

Museo de Arte de Ponce, Puerto Rico, The Luis A. Ferré Foundation

Painted late in his life, c. 1895, when he was suffering from a serious heart condition, Lord Leighton's *Flaming June* was the last of a series of sleeping beauties. Delicate condition precluded sending this painting on to Brooklyn. Title refers to color of gown; treatment of draperies derives from Leighton's admiration for classical and Renaissance art.

By Maureen Green

Re-creation of Olympus in high, heroic days of Victoria's reign

A neglected pocket of finely fashioned art, reconsidered by transatlantic experts, is brought to Minneapolis and Brooklyn

Arab Hall in Leighton House is a work of art itself and a showplace for the work of admired artists.

The canvases of fashionable painters often seem to live on a merry-go-round. Welcomed in by the front door to great houses and museums, they gradually descend from walls to cellars, then, after years of neglect, resume their journey back into daylight, into favor and a prominent well-hung position. Generally, the cycle takes about two generations, or 70 years. Which makes it high time that the work of a number of late Victorian artists, whose heroic visions uplifted the hearts and homes of the giants of industry and finance of their day, and brought the deeds of the gods to bolster the collections of British provincial galleries, were hauled out for reassessment.

Perfectly on cue comes an exhibition of the work of four of the mightiest names on the Victorian Olympus, grouped together as works of the "Victorian High Renaissance." The rich exhibit was organized by the Minneapolis Institute of Arts, where it is now installed through January 7, following a showing at the Manchester City Art Gallery. Afterward, it will proceed to the Brooklyn Museum, where it will be seen from February 10 to April 8.

At first sight, the works of these four Victorian artists strike the visitor most sharply with their differences. They did not work within any clear framework which would have simplified matters for future art historians. All were wildly different in temperament and success, including as they do the elegant and cultivated swell, Lord Leighton, who reigned for nearly 20 years as President of the Royal Academy; the difficult

Alfred Gilbert was early befriended by Leighton and went on to become one of Queen Victoria's favorites.

George Frederic Watts married Ellen Terry, was an intimate of notables of the age, painted numerous portraits of them.

and impecunious visionary George Frederic Watts; Albert Moore, dedicated and recluselike; and the unhappy, extravagant Sir Alfred Gilbert, for many years unofficial court sculptor to Queen Victoria.

"Each of these artists is very distinct in style," admits Gregory Hedberg, curator of paintings at the Minneapolis Institute of Arts. "But they all have the monumentality, the high moral tone, and a search for idealism in common." When Minneapolis took the initiative in suggesting a late-19th-century show more than two years ago, Hedberg gathered together four of the best-known authorities on the English art of that period: Allen Staley, Professor of Art History at Columbia University; Richard Dorment, an American art historian working in London on a catalog of English pictures for the Philadelphia Museum of Art; and Richard and Leonée Ormond, from the National Portrait Gallery, London, and King's College, University of London, recent biographers of Lord Leighton. The five organizers, mostly of a younger generation highly enthusiastic about Victorian art, spent some time drawing the outlines of "Victorian High Renaissance" as they wished to present it, discussing which painters should be in and which should be out. They finally closed in on four Olympians, to be able to include enough major works of each artist to allow for a serious reappraisal of the works.

The chosen four help to illuminate that strand of English Victorian art that stood worlds apart from the pre-Raphaelites. While those English artists had banded together to form a brotherhood that was implacably opposed to Old Master academicism, and which consciously turned to the medieval style for inspiration and to English literature, history and landscape for its themes, Leighton, Moore, Watts and Gilbert were irresistibly drawn to the classic tradition in an attempt to portray Ideal Beauty, to rediscover and study the Italian Renaissance masters, and to return to the ancient Greeks.

In their separate ways, each of these artists spent endless time before the Elgin marbles, brought from the Parthenon, which had been installed in the British

Maureen Green has written for SMITHSONIAN *on, among other subjects, Britain's National Theatre (June 1977) and Nikolaus Pevsner (February 1977).*

A solitary man, but much admired—Whistler was a friend—Albert Moore rarely left the calm sanctity of his studio.

One of the most notable men of the age, Lord Leighton was also among its most handsome.

Museum in 1816. Every one of these Victorians also studied in Italy.

One other common characteristic unites them. For all of them the accepted cliché of the artist's life was reversed: all were applauded and their talents duly recognized in their lifetimes but, almost from the day they died, their reputations and their works have been neglected. *Eros,* the statue of a winged young god of love, which Sir Alfred Gilbert sculpted as a memorial to the great philanthropist Lord Shaftesbury, is one of the best-known statues of the Western world, daily viewed by thousands from the top of a London bus. Yet Gilbert's name appears nowhere on it, and the artist and his other exquisite bronzes and marbles have been lost from view.

When Lord Leighton, the only painter ever to be raised to the English peerage, died in 1896, he was accorded a public funeral. His body was carried in state (Millais was one of the pallbearers) from the Royal Academy, to which his dying words "give my love to all at the Academy" had been addressed, to St. Paul's, where he was buried and soon forgotten. The Royal Academy mounted a Leighton retrospective in 1897, but no other show of his work has been held from that day to this.

In his lifetime, Albert Moore received generous sums from provincial English collectors, and the devoted regard of Whistler, who called him "the greatest artist that, in the century, England might have cared for and called her own," but only one retrospective show has been accorded to him since his death.

Only Watts has never quite faded from view. After a long life which included commissions for frescoes in the newly built House of Lords, and in which he prudently painted portraits of most of the famous men of his day (the National Portrait Gallery in London has 60), he was awarded the O.M. (Order of Merit) two years before his death in 1904.

Given the choice of applause during our lifetime or posthumous glory, most of us would probably settle for immediate recognition, especially if it could be like Leighton's. Frederic Leighton seems to have lived a charmed and charming life—he was possessed of golden good looks, a favorite not only of the gods but of those who might turn out to matter even more, from the moment he took up his brush—and to have presided

over the lives of a number of the painters of his day.

He studied in Rome as a young man—and between studies romped and picnicked with opera singer Adelaide Kemble (her married name was Sartoris and her daughter, May, is portrayed on the cover), her actress sister Fanny Kemble, the Brownings and Thackeray. From there Leighton sent back his first major work to be submitted to the Royal Academy summer exhibition of 1855. Not only did this first submission, a processional canvas of early Renaissance life as large as its title, *Cimabue's Celebrated Madonna is Carried in Procession through the streets of Florence,* get accepted, but at the private view none other than Queen Victoria and Prince Albert were entranced. As Victoria confided to her diary, "There was a very big picture by a young man, called Leighton. It is a beautiful painting quite reminding one of a Paul Veronese, so bright & full of lights. Albert was enchanted with it, so much so that he made me buy it."

Apart from a few difficult years living up to this spectacular start, Leighton moved on inexorably. While studying in Paris, he perceptively bought four great landscapes of Corot. He then went to Rome, where he painted portraits of Roman beauties that were reviewed as the work of "a young Old Master." He sold one to the visiting Prince of Wales.

On returning to London to live in 1859, Leighton was carefully kept out of the Academy for five years by a chauvinist lobby that thought his work too continental in style. But he met Watts, "a most marvelous fellow," and borrowed his studio. Watts was 13 years older than Leighton, already successful and famous, praised by Ruskin as "the only real painter of history or thought we have in England." Certainly Watts' insistence on painting great ideas and his credo as an artist, "the utmost for the highest," was instantly appealing to the younger man. Watts, in many ways the original of "The Man Who Came to Dinner," had traveled to Florence on the prize money from his winning fresco design for the new Houses of Parliament, and when invited to lunch by Lord Holland, the British minister in Florence, had stayed four years. Now back in London, Watts went to visit the Prinsep family for three days when they leased Little Holland House, and stayed 25 years.

During that time "Signor," as the family called him, became the permanent center of the Prinseps' brilliant literary and artistic salon, and a friend and fellow spirit of Tennyson, the poet laureate, whom he painted six times. He strongly influenced the photographic works of Tennyson's neighbor, Julia Margaret Cameron. In 1864 the middle-aged Watts married Ellen Terry and lived with her for a brief year, before her beauty and talent, vividly conveyed in Watts' portraits, tore her away to the theater.

When Leighton was finally elected as an Associate Royal Academician in 1864 his role as indefatigable worker for artists, and statesmen in their cause, began to emerge. When the Royal Academy hanging committee of 1869 was about to reject Albert Moore's first full-length standing female nude, Leighton threatened to withdraw his own work unless it was accepted.

A reclusive friend

That Moore, a confirmed bachelor and recluse, might need champions seemed obvious, and Leighton was not the only artist to exert himself in that cause. Whistler admired Moore's classically draped figures and introduced him to his own lighter palette and Oriental motifs. For a time Whistler's and Moore's work became so similar that Whistler felt uneasy and wondered whether they might injure each other's reputation. They frequently dined together, and when Dante Gabriel Rossetti dismissed Moore as "a dull dog," Whistler sprang to his defense: "He thinks slowly but he is not in the least dull."

Moore lived in placid disorder in largely unfurnished rooms in Holland Lane, his modest needs covered by sales to a number of faithful patrons. Whistler visited Moore one day and found him painting in a huge dreary room, the floor covered with jugs and pails. "Whatever can they be for?" asked Whistler in amazement. "For the drips," Moore answered, pointing to the leaking roof.

Leighton, now financially secure, had begun to build himself a house on Holland Park Road, choosing an old friend, George Aitchison, as architect and displaying a new consciousness of the artist's need to lead taste and set standards, rather than merely following aristocratic traditions. Into this house—the drawing room hung with his famous Corots—poured half of

The Last Watch of Hero, with predella, *Leander Drowned,* is a fine display of Leighton's taste for the dramatic and for classical legends. One of his favorite subjects, Dorothy Dene, posed for it and other paintings.

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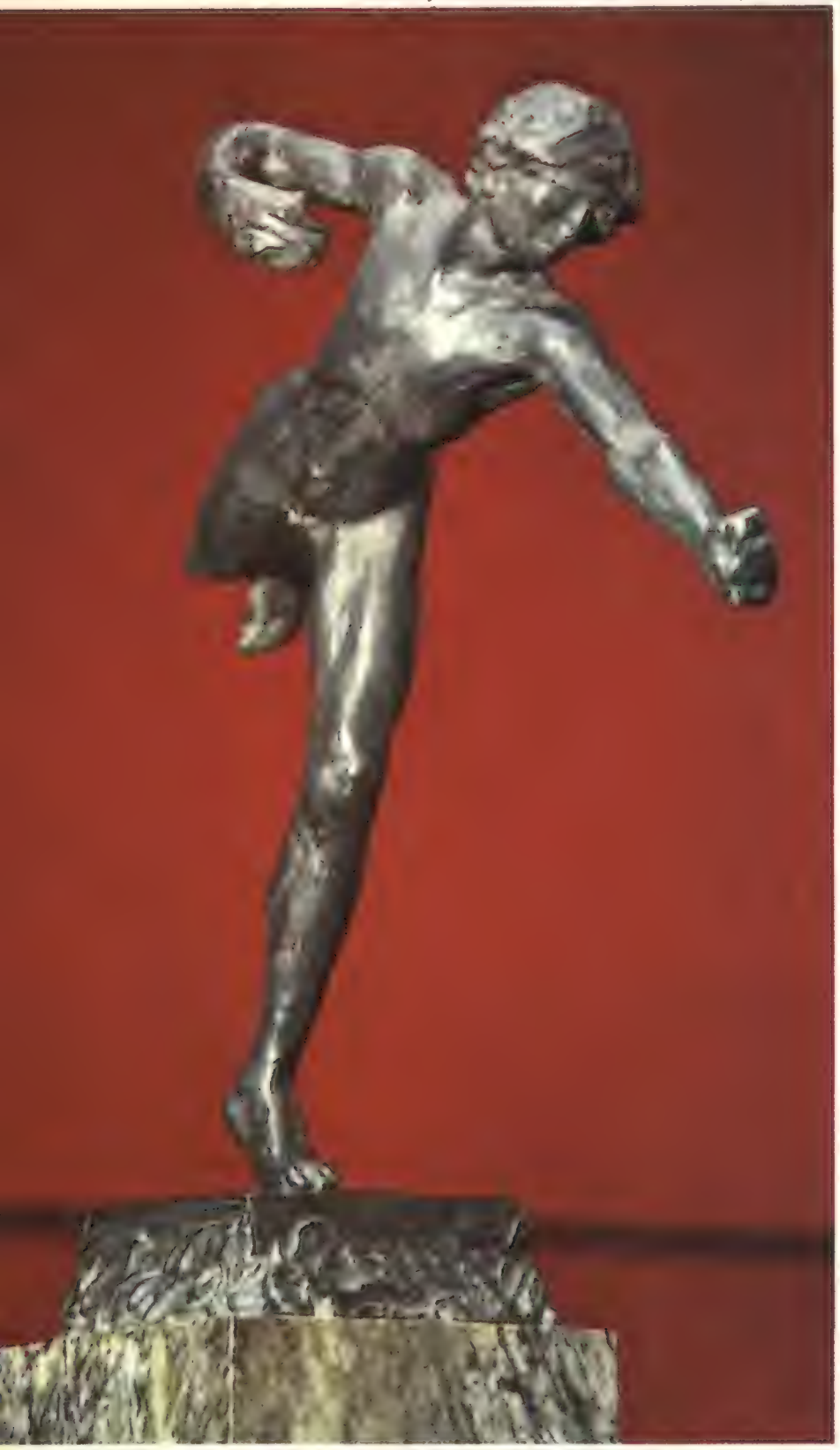


Statue of Eros by Gilbert, c. 1891, is similar to that atop Piccadilly's Shaftesbury Memorial.

A highly idealized view of life on the farm, this is a virtuoso performance by Watts, painted in 1845.

the cultivated and fashionable of London society.

Leighton was as good at quiet suppers for neighbors such as Watts or Albert Moore as he was superb at his fashionable "musical evenings," when Adelaide Sartoris would sing, the celebrated violinist Joseph Joachim perform, and Leighton himself, who was no mean tenor, join in. After travels in the Middle East, he installed an extra room, an Arab Hall (p. 49), complete with central fountain and decorated with antique blue and yellow tiles, some of which Sir Richard Burton, the explorer, whom Leighton had met at Vichy in 1869 and later painted brilliantly, helped him to find. The Arab Hall completed the opulence of Leighton's milieu, even if some of his dinner guests had a habit of falling in the fountain. As a setting for large gatherings it was, wrote the mischievous essayist and traveler Vernon Lee in 1883, "quite the eighth wonder of the world, including a Moorish cupola piece, with a fountain, all lined with precious Persian tiles and mosaics by Walter Crane, as good almost as a Ravenna church; Sir Frederic is a mixture of Olympian Jove & a head waiter, a superb decorator & a superb piece of decoration."

Leighton's energy and his eye made his eventual elec-

The Earl of Clarendon

Peasants of the Roman Campagna was once known as *Dolce far niente* (It is pleasant to do nothing).

The Scottish Kirk

Gilbert's *The Virgin,* one of two known casts for a figure designed for Duke of Clarence Memorial.

tion as president of the Royal Academy a foregone conclusion. From 1878 until his death, Leighton *was* the arts establishment. His efforts for the Academy were boundless. Not only did Leighton try to reform the Royal Academy schools and their standards, but he also tried to get and keep the better artists inside, not outside, its walls.

Nor was Leighton afraid to tackle the highest in the land, when need be. On one occasion he wrangled with Queen Victoria herself, when he suspected that she was trying to get a painting of her son Prince Leopold's wedding done on the cheap, and stepped in and succeeded in obtaining the artist a more respectable fee.

Leighton met Gilbert in Perugia in 1878, and was instantly won over by his ability. He offered him a commission to execute a bronze on any subject he might choose. Gilbert chose to portray Icarus, a theme both classical and autobiographical, for the 24-year-old Gilbert confessed, "it flashed across me that I was very ambitious: why not 'Icarus' with his desire for flight." The bronze caused a sensation at the Royal Academy summer exhibition of 1884, and on Leighton's urging Gilbert came to England and joined the Royal Academy.

Leighton, on the other hand, was exemplary. No wonder that occasionally he also seemed too much. Whistler was one who felt it necessary to prick the balloon from time to time. On one famous occasion, a fashionable lady was carrying on enthusiastically about the talents of the charming president of the Royal Academy, his command of four European languages, his musical gifts, his taste. Whistler drawled, "Paints too, don't he?" The crack was lethal then, and still reverberates. Instantly, it raises the question that hovers over the current exhibition. The lives and times of Leighton, Watts, Moore and Gilbert are a fascinating and neglected patch of English cultural history. The enthusiasm and care of the art historians who have documented this exhibition are in those terms totally successful. But how far can we actually be expected to admire the pictures?

"These artists are a great deal better than anyone has ever given them credit for," insists Richard Ormond, Leighton's biographer. "They are all sound technicians. And they know how to compose on the grand scale. They are the last fling of a particular tradition. What we are working hard to overcome here is the idea that anyone who wasn't painting like the Impressionists at this point was a nobody." While Leighton's technical perfection stuns, so much of his work can still strike the viewer as conscientiously aiming for the highest, but missing in some fatal dimension of feeling. Amazingly, the works of the last decade of Leighton's life seem to break free of his inhibitions. Watts also, though notably more endowed with "soul" than Leighton and giving to the world one wholly memorable symbol with *Hope,* seems likely to be valued for his perceptive portraits, as of Manning and Tennyson, rather than his wildly romantic work.

The surprise of the show is the abstract delight in color and drapery of Albert Moore. The quicksilver talent of Alfred Gilbert is also ripe for real appreciation, from the early works whose relationship to Donatello is far from embarrassing, to the great bronze of Queen Victoria in Winchester Castle in which, as Richard Dorment writes, "The sweep of her robes, her commanding gaze, the bold scale, and the wonderful manipulation of bronze all look to Bernini." Gilbert's last exquisite polychrome bronzes, like *The Virgin,* lead straight into the ideas of Art Nouveau (p. 55).

That Gilbert should have been so forgotten seems

Although figures are meticulously done, what is uppermost is color and design—Moore's *Beads,* 1875.

incomprehensible. When he was commissioned in 1886 to create a memorial to Anthony Ashley Cooper, the Seventh Earl of Shaftesbury, whose philanthropic efforts for the young and the poor had made him a national saint, Gilbert chose a wholly original idea, not a statue of Shaftesbury himself, but a symbol of selfless love, Eros. (In truth Eros is a symbol of more earthly passion, and Anteros would be a more proper name.) Despite the sculptor's wrangles with the four committees involved in supervising the commission and choosing a site, and despite the encroachments of new buildings and traffic into Piccadilly Circus in the years since its erection (on a fountain so altered by bureaucracy that Gilbert lamented "the utter failure of my intention and design"), *Eros* has become the symbol of London, a total winner. Even today, the very persistent can get close enough to view the putti and dolphins on the fountain, and for the price of a bus ticket come face to face with the lithe archer himself. Yet as Richard Dorment, who is working on a new biography of Gilbert laments, "he has been utterly neglected."

Putting Gilbert back on the map of art history may not prove so difficult, after more shows such as this. The day may well come when tourists and trippers will saunter down Piccadilly and point at the statue of *Eros* for its own sake, and hail it with the words, "Of course, that's the great Gilbert."

National Gallery of Scotland, Edinburgh

By Alex Shoumatoff

Science takes up medieval sport to help peregrines

Biologists try to reintroduce rare birds to skies by using ancient technique of falconry—but, when night falls, owls take a deadly toll

Downy peregrines (seen through peephole) perch in hacking box on a ledge, where they are kept before release. Here they are about a month old.

The five "eyasses," as nestling peregrine falcons are called, were screaming bloody murder on a high ledge of the Shawangunk Ridge, a sheer escarpment near New Paltz, some 80 miles northwest of New York City. Remote, magnificently exposed, it was a classic raptor's ledge where, until their extinction nearly two decades ago, eastern, or Appalachian, falcons had returned to breed for centuries. Now the offspring of other subspecies, hatched in captivity, would be released and taught to survive by "hacking"—a training technique used since the days of medieval falconry. If the experiment succeeded, the five eyasses would soon take wing and themselves return to this ridge to breed in future years.

The eyasses, at 27 to 33 days old, were still entirely covered with white down. Their yellow feet were enormous; one saw why Audubon and the other early naturalists had called the peregrine "great-footed hawk." Three were "tiercels," as peregrine males are called; the two females were about a third bigger but otherwise identical to them. All five were protesting violently, with long streams of staccato "caks," because they had just been handled.

"These birds sure are aggressive," Jack Barclay said approvingly as he removed them one by one from a cardboard container, held them up briefly, and put them in the four-by-five-foot plywood box that would be their home for the next 12 days. He had just driven down with them from Cornell University's Behavioral Ecology Facility, the famous "hawk barn," where the endangered peregrine falcon is being bred in captivity. The second part of the project, returning it to the wild, was Barclay's and the birds' reason for being here.

Eastern falcons: a lost race

Twenty years before there had been three peregrine aeries on Shawangunk Ridge. But by the late 1950s—the story is by now familiar to many—Man's far-reaching poisons, the unfortunate by-products of his technological advance, had spread through the biosphere until they had begun to affect even the wildest and most aloof organisms. The peregrine, like the bald eagle and the osprey, turned out to have a tragic intolerance of DDT: the pesticide interferes with eggshell formation, and when the amount of DDE (the breakdown product of DDT) in the eggs reaches about 20 parts per million, the shells become so thin they break before hatching. By 1959 there were no more breeding peregrines on Shawangunk Ridge or anywhere else east of the Mississippi River. Over the next few years, the eastern peregrine, *Falco peregrinus anatum,* passed out of existence. Today the DDT levels in eastern North America are probably low enough for the birds to be reintroduced. Fortunately the pere-

grine—as its name suggests—has an almost global distribution, with 19 subspecies. Although the European and other North American races differ from the extinct eastern peregrine in color, size, migratory habits and the time of year at which they reach reproductive readiness, none of these differences seems to diminish their ability to occupy its former range. But there are many other problems, and it is proving no easy matter to undo what we have done.

The eastern peregrine falcon reintroduction program is the baby of Tom Cade, whose eyes have the quickness and the intensity and his features the aquilinity of the birds he has made his life study. In the 1950s Cade, then a doctoral student in ornithology at the University of California at Los Angeles, studied wild peregrines in California and Alaska. Little did he realize that his extensive notes on the birds' feeding and breeding habits would be critical information two decades later when it became necessary to maintain the populations artificially.

Training birds in loco parentis

The greatest obstacle to returning the bird to the wild, ironically, is nature itself. On Shawangunk Ridge, Barclay would make the most painstaking preparations to give the five eyasses a chance of surviving. Since the eastern peregrine became extinct, great horned owls have taken over many of its old nesting cliffs. Young eyasses standing on ledges in what is now owl territory, with no parents to protect them, are defenseless against nocturnal attack by these large, ravenous predators.

Another problem is "getting around the parental care aspect," as Barclay put it. The eyasses hatch with their eyes closed and are completely dependent on their parents. Each of Barclay's birds ate two or three small domestic quail daily; he had brought a cage with about a hundred quail, which, after being freshly killed, were dropped into a plywood box through a stovepipe. It was vital at this stage to avoid any human association with the appearance of the food, or the birds would imprint on their feeder and never become wild.

While Barclay could feed the birds, he couldn't teach them to fly and to catch their own food. How would the eyasses learn what they needed to know to survive on their own? "They learn instinctively," Barclay said. "Some of the learning will be discovery of innate capability. Every peregrine, for example, has a toothlike projection on each side of its upper mandible that enables it to dislocate the vertebrae at the base of its victim's cranium. It performs this cervical bite instinctively; it kills its prey immediately to protect its eyes. All peregrines have innate flying ability

On ledge 300 feet above valley near New Paltz, Jack Barclay and hackers prepare to release young falcons; before birds are out, humans will hide.

Photographs by George Silk

Emerging from box, young falcon surveys the ledge from which it will soon take first short flight.

and curiosity about flying objects. They will learn to hunt on their own."

In the prefabricated box that Barclay had just bolted together, the eyasses had calmed down somewhat, and through spy holes in the rear wall we could see them looking upward; the front wall consisted of metal bars and chicken wire, and all five were raptly watching four turkey vultures which were making lazy circles in the updrafts near the cliff. For almost two weeks, the caged birds would show intense, head-bobbing interest in passing vultures, pigeons and airplanes, while their eagerness to take to the air themselves would mount steadily. Barclay watched the vultures circling up in the thermals. "Vultures are a young falcon's favorite toys," he said. "You can bet that not long after the bars are removed, they'll be up there with those vultures."

It takes about three to five weeks of flying time for hacked peregrines to become independent; the mortality rate during this period averages a discouraging but unavoidable 30 percent. Owl predation, starvation (when a bird strays from the aerie before it is fully able to hunt for itself) and flying accidents are the main causes. Unobtrusive human stewardship is therefore of great importance. Watching from a concealed station on a nearby ledge were the two "hacking attendants," who would feed the birds and keep them under constant surveillance until the birds dispersed. Mike Chamberlin and Bruce Lindsay were both from Michigan; Mike is a high school ecology teacher, Bruce a forestry major at Michigan Technological University. Hacking is a falconer's term for allowing a young bird to fly free until it starts hunting on its own.

Alex Shoumatoff is resident naturalist of Marsh Memorial Sanctuary in Mount Kisco, New York, and the author of The Rivers Amazon.

For centuries European falconers have hacked peregrines from sheds, towers and shepherd's cottages, feeding them carefully to avoid human association. Cornell's peregrine reintroduction program closely follows the classic hacking procedure, except that a bird to be used for falconry is recaptured after its first kill and, to the scientists, the first kill is only a step in its re-education to the wild. In a sense, Barclay's and his assistants' job could be described as "hacking back" the peregrine falcon.

The release site Barclay had chosen seemed ideal for the task. It was accessible to the hacking attendants but well off the beaten path. Another consideration was a good updraft; this made it easier to become airborne and to get back to the box from the cliff. "Want to see why this is a good site?" Barclay asked. He picked up a handful of pine needles on the ledge and flung them out toward the valley. The needles were immediately borne upward and out of sight.

When I returned to the ledge 12 days later, on July 10, Jack Barclay was already there. He had driven out to the cliff the night before and slept in his pickup truck, as he often does in the summer months when he commutes between release sites. This year 53 peregrines would be hacked in New York and six other states: New Hampshire, Massachusetts, Maryland, Virginia, Pennsylvania and New Jersey. The year before 46 had been released, bringing the total number since the eastern program was begun in 1974 to 154. Some of these released birds have returned safely to their original hack sites every year since 1975; this year more than a dozen peregrines—the most to date—have been

observed returning to eight different release sites.

The once down-covered eyasses were now recognizably peregrines. They had grown considerably and their flight feathers were about two-thirds developed. Their breasts were streaked with brown and a slate-colored bar ran down their cheeks—the characteristic "malar" bar that gives the peregrine a smart, almost military appearance. Barclay measured each bird's central tail feather, an indication of the bird's maturity and readiness for release. One female was not yet ready, he decided. She was caught and temporarily placed in a cardboard container.

The other four protested hysterically as Barclay attached to their legs a small transmitter and a colored streamer that would serve as both an antenna and an identifying marker. From now on they would be known as Purple, Red, Blue and Yellow (and the last female, when she was released a day later, as Green). With the leg radios the birds could be tracked up to two miles from the receiver in Bruce Lindsay's tent. "These birds are prone to get into dangerous situations," Barclay said. "They're young and vulnerable and don't know anything about the world outside their box. They could fly off in a strong wind and get disoriented." In three weeks Barclay would retrap the birds with a bow net as they came in to feed, to remove the leg radios and streamers.

On ledge, bird stretches with its wing drooping, its underdeveloped muscles unable to fold wing in.

As Barclay readied the birds, he explained that the actual release was liable to be an anticlimax. "It may be several days before they're motivated to take their first flight," he said. As far as he was concerned, the longer the better. "I want the birds to spend some time out front so they orient themselves." To ensure that they wouldn't fly too hastily, he shooed them behind a cardboard "hide" inside the box, where it was cool and shady and they couldn't see him removing the bars. "O.K., let's retreat." We withdrew to a ledge where several telescopes had been mounted on tripods and trained on the box; from now on the birds should see no humans. "Sometimes it's an hour before they come out," Barclay continued. "The hide gives them a chance to calm down. The release must be so subtle that they don't even know they've been released. This way, when they walk out, they are at peace."

Perched on pole which extends from cliff, falcon flaps wings over dead quail to warn off rivals.

Now there was nothing to do but wait. Bruce showed us two great horned owl feathers he had found farther down along the cliff. One could have come from the year before; the other had been freshly molted. For the next three weeks, owls would be the chief danger. In 1977 they killed and ate five peregrines at inland hack sites.

At 11:08 A.M., 48 minutes after we had begun our vigil, Bruce gave a muted shout: "Bird out." It was Red, the largest tiercel. He walked to the edge of the ledge and then out on the pole that Barclay had set up as a perch. Two freshly killed quail had been left on the middle of the pole as an enticement, and the peregrines had not been fed the previous day. Red stood over the quail and instinctively mantled them with open wings—a threat gesture intended to warn off competitors for his food. At 11:30 Blue came out to the edge of the ledge and, head bobbing, took in the view. Both Red and Blue proceeded to flap vigorously, exercising wings that had never flown. By mid-afternoon the other two birds had come out. The birds passed the afternoon feeding, preening, flapping and "helicoptering" in updrafts—which could lift them a

Perching awkwardly on the pole, unsteady falcon flaps its wings in attempt to maintain balance.

In a strong updraft, one bird huddles on pole while another one clings to the cliff, its wings extended.

foot or two off the ground—but none flew that day.

At 5:35 the next morning, Red, 42 days old, boldly took his first flight, a 50-meter glide along the cliff top. Later that afternoon, the other birds were flushed from the ledge when Green was placed back in the hack box for release. The birds' earliest flights were short, perch-to-perch ventures, but within the next day or two they had progressed to circling and soaring in "exploratory" flights, then to letting their feet brush insects, feathers and treetops while in flight, and finally to playful encounters with each other and with other birds.

Red and Purple, the quickest to gain confidence on the wing, became "flying buddies." By the 14th, their third day in the air, they were making "exhibition" flights—barrel rolls, loop-the-loops, saw-toothing (jagged undulations), stoops toward the boulder-strewn valley. A peregrine stoops when it descends vertically with half-folded wings on its prey, at speeds that can

At cliff's edge, falcon twists its head around to follow the flight of a passing turkey vulture.

exceed 150 mph. But Red and Purple were only playing; they weren't "binding to" prey (grabbing it by the back), or raking it with their claws, or knocking it to the ground, feathers flying.

Red was the most precocious of the five; his early flights already showed great agility and speed. On the second day he chased a barn swallow, and after a week he was ranging four miles and could match turn for turn the evasive actions of the vultures. His favorite antic with Purple was "crabbing"—enticing the other tiercel to chase him, then rolling over on his back in mid-air and, with talons menacingly open, letting out a series of aggressive shrieks that seemed almost derisive. All told, Mike and Bruce observed 272 incidences of crabbing, and encounters with 44 other avian species. Ninety percent of these involved Red.

The hacking attendants also noticed temperamental differences in each bird. There was a clear hierarchy, with Red dominant, then Purple, Blue, Yellow and Green. Poor Green—she was three days behind the others, and while Red and Purple were already having aerial dogfiights she hadn't even taken her first flight. On the 14th she was flushed and finally made a shallow down glide, then, with labored flapping, returned to the cliff 50 meters south of the box. The other birds continually stooped at her and kept her from returning to the ledge to feed. She spent that night by herself, in a tree below the ledge.

In less than a week the birds were not only playing with each other but with vultures, pigeons and kestrels. Occasionally one falcon would chase a vulture for awhile, then another would pick up the pursuit where the first left off. In more mischievous instances, one falcon would catch another unawares, dive-bombing it as it chased a fleeing vulture.

All signs were encouraging that the birds would soon be able to survive on their own. But in mid-July the first sign of trouble appeared, and soon afterward the whole experiment on Shawangunk Ridge had to be halted. The terse, unemotional notes of the hackers' site report best describe what happened: "On 15 July Purple (fifth day of flight) was not observed feeding at the hack box. Since the visibility was very reduced owing to fog, we hoped he might simply have gone undetected. The next day, when he was still not seen, we made hourly telemetry readings of his location. It did not change the entire day. On 17 July we descended into the valley and at the base of the sheer cliff found the transmitter, still attached to his severed right leg. The pelvis and half of the left femur were also present. The bones were picked clean but not crushed. Great horned owl predation was suspected."

Out of peregrines' sight, Jack Barclay views the birds in flight from hackers' lookout post.

After a morning flight the next day, Green failed to return. Radio signals led the hackers and Barclay to the same area where Purple had been killed. A two-day search pinpointed the signal in a boulder field, but all they ever found were some falcon and owl feathers. A day later, on July 21, the three surviving falcons were trapped in a bow net at the feeding ledge and returned to Cornell.

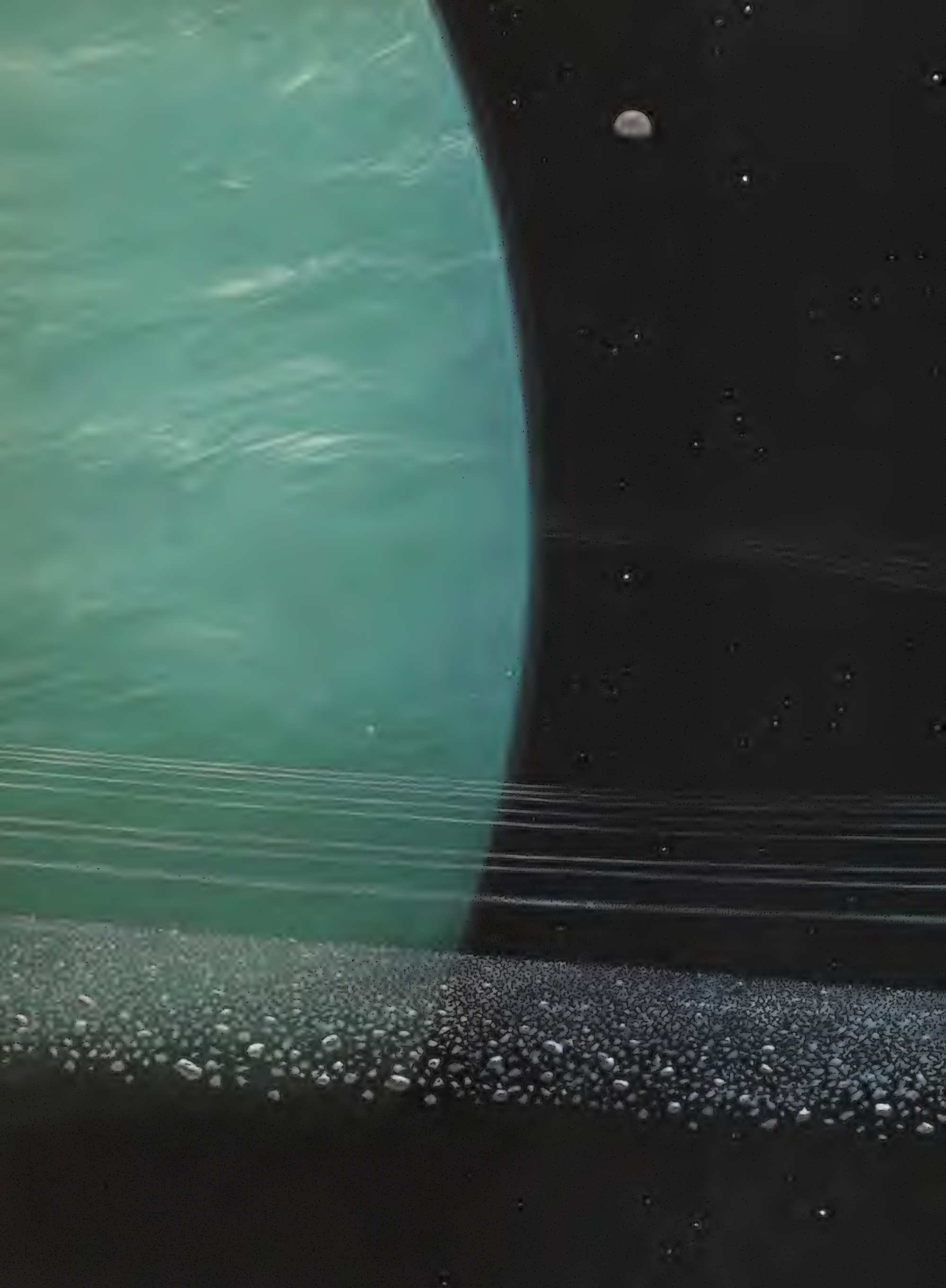
"The ending is dismal but realistic," Mike said philosophically. "You can't build success without failure. Except for the owls, everything about this place is perfect. It's such a dead, empty feeling, even only having had them there for a week. You can see how people must have really grieved when the eastern peregrine became extinct. They belong here."

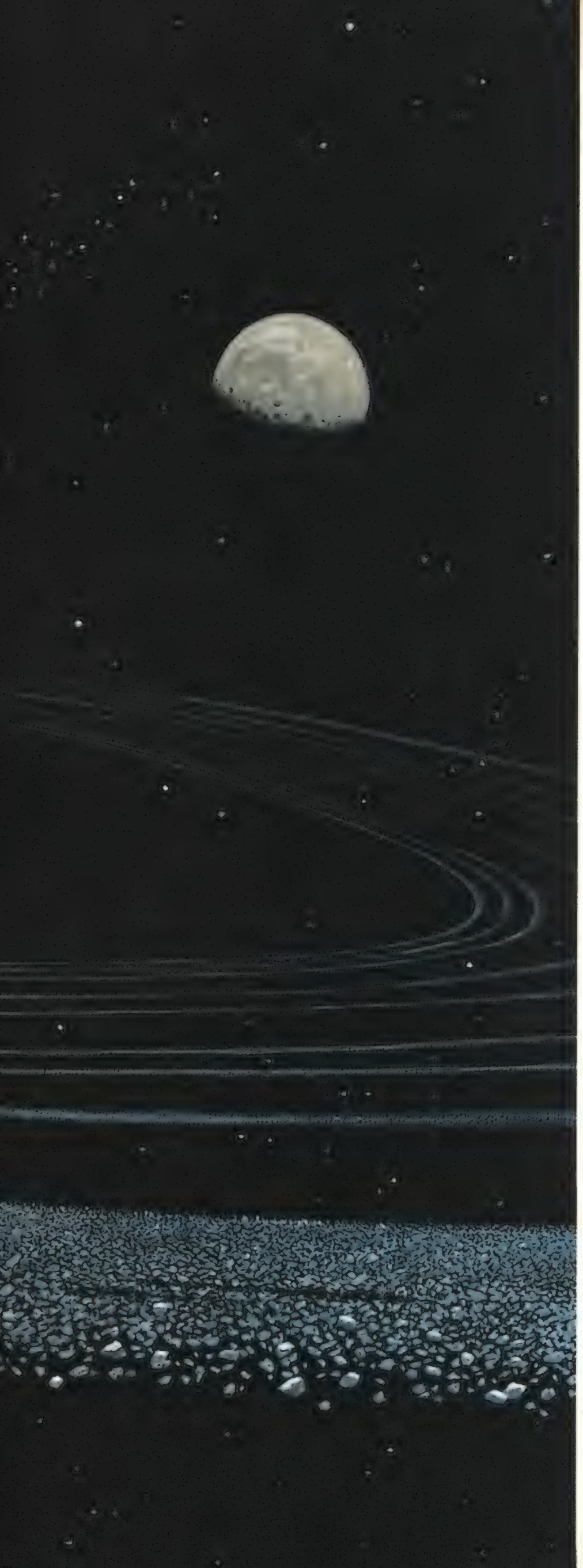
At Cornell, Tom Cade takes a realistic view of the problems facing his program. "There's not much we can do about owls except avoid them," he says. Besides searching for alternative sites, Cade expects to increase greatly the number of birds released each year. Before long, he anticipates producing 100 more young peregrines a year from the breeding program at the hawk barn. That is more than the natural annual production of the entire population of peregrines that used to breed east of the Mississippi before the era of DDT.

Along with owl predation, bureaucratic hassles with the Department of Interior's U.S. Fish and Wildlife Service have posed another threat to Cade's program, which is funded by a variety of federal, state and private agencies (each bird released represents an investment of about $2,000). Because Cade is releasing peregrines from different geographical populations, on the theory that nature will select the individuals best adapted to the Northeast, the Service has questioned the use of its endangered species funds to support the introduction of some peregrines that are not officially endangered. Ornithologists the world over have supported Cade, and protested this narrow interpretation of regulations. Funds for Cade's program have not been cut off, moreover, and last spring the Service established a policy that permits the release of foreign and nonendangered peregrines in the East on an experimental, case-by-case basis. But the matter remains under official review.

I visited Red, Blue and Yellow in the hawk barn. Cade and Jim Weaver, who breeds and trains the birds, hadn't decided what to do with them. It was too late to rerelease them this year at another site: they'd probably fly off and die, unable to make a living. They weren't particularly desirable for captive breeding since they hadn't been raised or conditioned for that purpose. There were two possibilities: they could be rehacked next spring (this was being tried this year with a New Hampshire bird which had broken its wing in 1977, and it seemed to be working), or they could be turned over to licensed falconers, trained to hunt, and eventually, when they were ready, rereleased. Weaver was outspokenly in favor of the second plan, although it would require permission from the government. He had been handling birds of prey since he was a teen-ager in Illinois, where he caught and banded them before permission was needed. "They were still considered vermin," he recalled. "Trained peregrines do revert to the wild. You just have to slowly divorce yourself from them. Leave them in some evergreens for a day without food. Then, without their being able to see you, release some pigeons. They'll take it from there." Were there still falconers qualified to train them? Weaver was sure of it: "I know people out there who would cut off their arms to be able to fly a peregrine again."

Soaring over valley at sunset, a peregrine ends its third day out with long exploratory flight.





By Dennis L. Mammana

Now we have two ringed planets in the solar system

The distant Uranus was a total surprise when it emerged from silence; news of the green sphere continues to startle

In the abysmal silence of interplanetary space, 2.8 billion kilometers from the life-giving warmth of our sun, lies a strange and alien world: the planet Uranus. Completely unknown to the early civilizations on Earth, Uranus has circled the sun more than 60 million times since its birth about five billion years ago.

When the planet was accidentally discovered in 1781 by an obscure amateur astronomer and musician, our concept of the size of the solar system expanded considerably. But it is only within the last several decades that mankind has been able to go beyond Earth's turbulent atmosphere for a clearer, sharper concept of this distant world. Today electronic eyes monitor all planets, and now two instrument-laden spacecraft are zooming toward the outer planets with hopes that one will get a close-up look at mysterious Uranus.

It was on a cool spring evening in 1781, while routinely scanning the stars in the constellation of Gemini, that a German emigrant to England, William Herschel, encountered an unusual greenish object among the stars, an object that did not appear on any of his celestial charts. Herschel knew that all stars were much too distant to appear as anything but points of light through even the largest of telescopes. But this

We have no clear pictures of the rings yet, but this artist's speculation shows what the small, thin bands may look like. Two of five moons are visible.

Illustrations by Pierre Mion

object appeared to be a disk. Therefore, he reasoned, it must be much nearer than the distant stars. When he increased the magnification, the object appeared to grow in size while the stars remained as points. Further study revealed that it moved in relation to the stars. This confirmed Herschel's suspicions that the new object was relatively nearby. He announced to the Royal Society his discovery of a comet.

Hundreds of comets were already known to exist, but this object intrigued astronomers because it showed relatively *few* characteristics of a comet. Why did it appear as a well-defined disk instead of the fuzzy patch so familiar to comet hunters? And why, after months of observation, did it not develop a long tail?

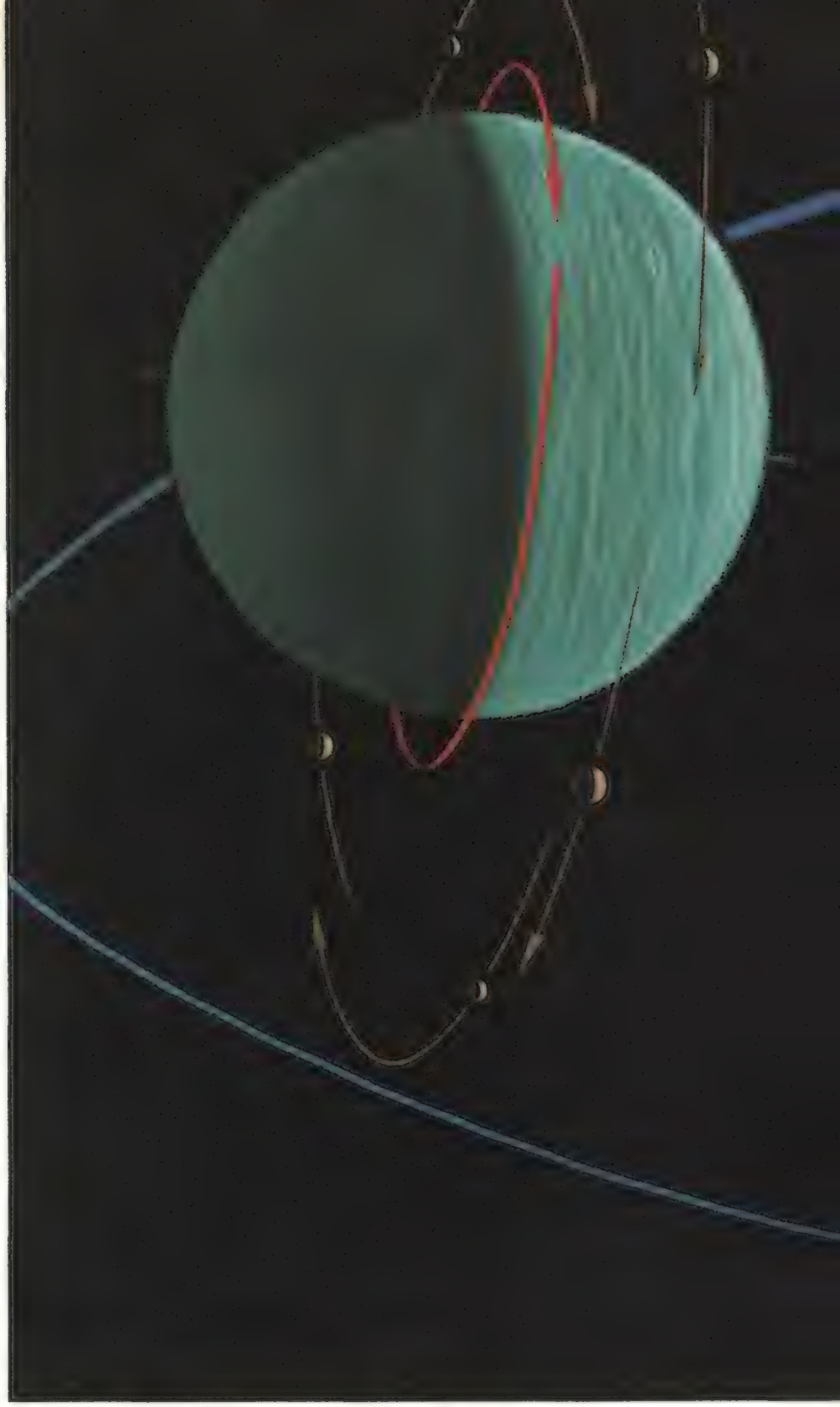
English and French astronomers combined their observations to compute its orbit and to determine the exact nature of the object. Their calculations yielded a most surprising result: Herschel had not discovered a comet after all, he had discovered a new planet. This sphere circled the sun in a large majestic orbit—19 times as far from the sun as is the Earth—and required 84 years to complete just one circuit.

Until Herschel, only five planets were known to wander through the starry skies. The idea that Saturn was the outer boundary of the solar system was ingrained into astronomical thought. But in 1781, William Herschel overturned the science of astronomy and became the most famous astronomer of his time.

Uranus has been known for nearly two centuries now, but only recently have we been able to probe the planet's most intimate secrets. At an average of three billion kilometers from us, the planet is too remote and faint to appear as anything but a tiny disk, even to the world's largest telescopes. Its greenish face rarely shows any detail. Without markings, it has been extremely difficult to establish a rotation rate. Since the beginning of this century, a day on Uranus has been assumed to be about 11 hours long. Recently, however, several observers have found evidence that a day on Uranus may be as long as 25 hours, very much like that on our own Earth.

Certainly one of the oddest features of this distant body is its extreme tilt. The axis of the Earth is not straight up and down relative to the plane of its orbit around the sun, but is tipped 23.4 degrees, a circumstance that provides us with the seasons. Uranus, on

The author, formerly of the Smithsonian's National Air and Space Museum, is a staff astronomer at the Flandrau Planetarium, University of Arizona.



Here Uranus (left), the Earth and their moons are drawn to the same scale (distances are not accurate). We are looking up at them from underneath their orbits. If you think of each planet's orbit as a circle

that defines the horizontal, then the axis of Earth is tipped just over 23 degrees from the vertical. But Uranus is tipped 98 degrees, so that in certain parts of its orbit it seems to be rolling along its path.

the other hand, is tilted 98 degrees to its orbital plane. In effect, Uranus lies on its side. This allows us on Earth to view its polar and equatorial regions at alternate 21-year intervals.

Because of the planet's unusual tilt, Uranus appears to us to rotate backward. Its five moons are visible as only faint points of light in even large telescopes; not much is known about them except that they, too, revolve about their mother planet in reverse.

A great deal can be learned about a planet's size, shape and atmosphere by taking advantage of a natural phenomenon called an occultation. It occurs when, as a planet moves across our sky on its long trek around the sun, it passes in front of a distant star and briefly blocks the starlight from reaching Earth. If the planet has an atmosphere, the starlight does not blink off instantly as the planet crosses in front; it gradually dims (p. 70) as it passes through increasingly thicker layers of atmosphere. As the planet moves by, the starlight gradually reappears on the other side. By studying how starlight behaves as it passes through the atmosphere of a distant planet, we can learn things about its temperature, pressure and composition. By measuring the time that the starlight is completely blocked by the solid body, astronomers can determine the size of the planet with remarkable accuracy.

A rare opportunity to learn more

In 1973, the British astronomer Gordon Taylor predicted that an occultation of the star SAO 158687 (SAO stands for Smithsonian Astrophysical Observatory) by the planet Uranus could be seen in March of 1977 from the area around the Indian Ocean. Preparations were begun at eight prime observing sites for what was to be a rare opportunity to learn more about Uranus and its atmosphere.

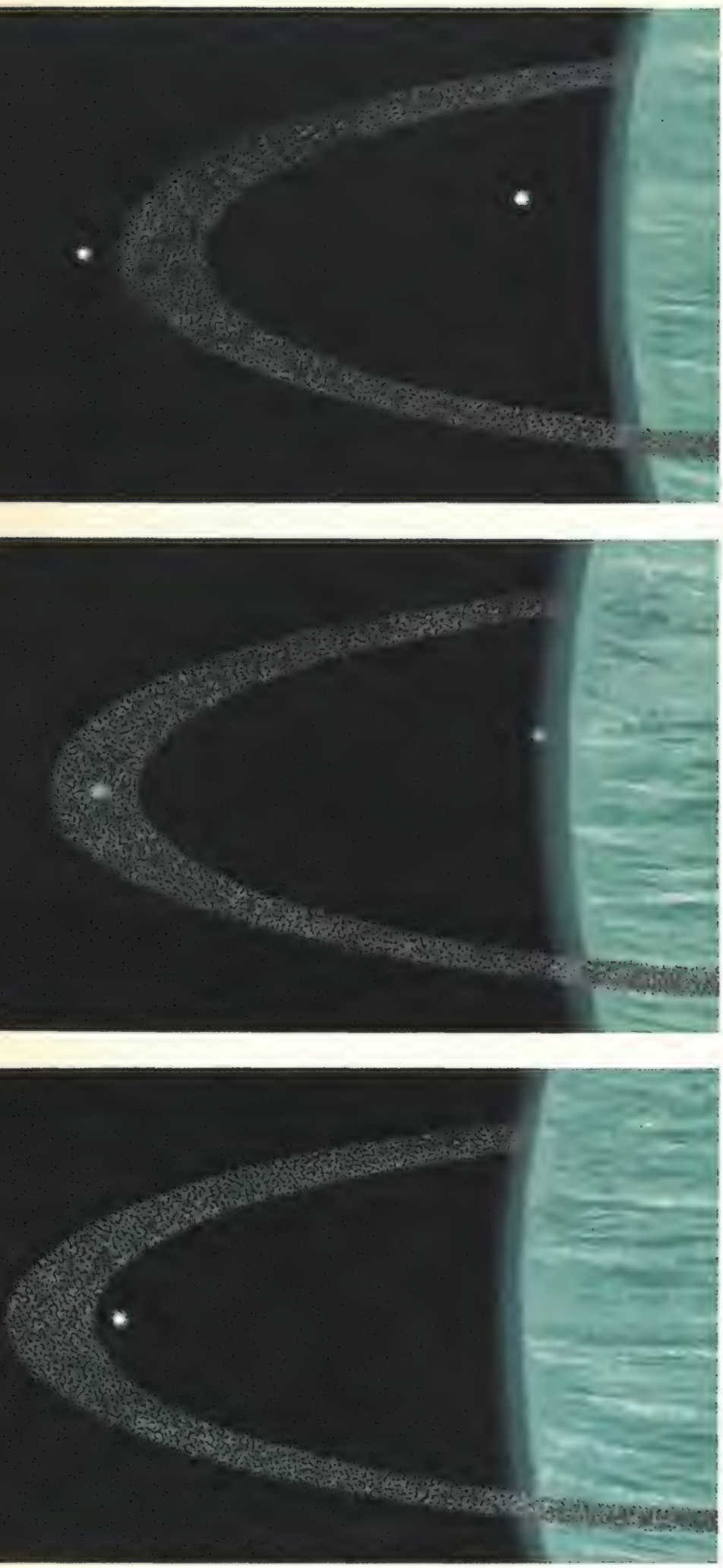
One of the observatories was NASA's Kuiper Airborne Observatory (KAO), a modified C-141 jet designed to fly above 75 percent of Earth's atmosphere. On board were a telescope, a sensitive photometer to monitor the starlight as it dimmed behind the planet, and computer equipment.

On March 10, 1977, astronomers began their observations early because the time predictions for this event were not extremely accurate, and they made a major discovery.

Aboard the flying observatory, 35 minutes before the star's scheduled disappearance behind the planet, astronomers noticed a dip in the light from the star that lasted for several seconds. This was dismissed as a glitch in the equipment until, a few minutes later, a second dip occurred, and then another, and another, and still another. The scientists began to suspect that unknown Uranian satellites were blocking the starlight. After the main occultation, five more dips appeared and the astronomers first suspected that they had discovered several new large satellites in orbit around Uranus.

When the data were analyzed further, another surprise surfaced. The incredible symmetry of the dips before and after the main occultation suggested that four narrow and one broad ring encircle Uranus.

Until the occultation, only Saturn was known to be circled by rings. The rings of Uranus are far narrower than those of Saturn. Of the nine rings now known, seven are only about five kilometers across, one is about 15 kilometers, and one is perhaps 70 to 100 kilo-



In this sequence (top to bottom) of an occultation, Uranus, green mass at right, is moving to the left. The star at left dims when a ring passes in front of it (middle), then brightens as it reemerges. The star at right dims as it goes behind the planet's atmosphere, (middle), then disappears when covered by planet.

meters across. The ring system is only about 15,000 kilometers from the edge of the planet.

Little else is known about the rings so far, but astronomers will have another 13 occultations to study by 1980 (two have already occurred).

Some astronomers think that the rings appear in the photographs taken by the Stratoscope II balloon in 1972, and some have now begun deliberate attempts to photograph the rings. Their extreme faintness and their nearness to Uranus, however, causes them to be lost in the planet's glare. If astronomers can reduce the glare from Uranus by filtering out its greenish light, perhaps the rings can be captured on film. Or if an occulting disk can be placed over the planet to completely block its light, the rings may then be visible; their proximity to the planet, however, would make this difficult.

While we know very little about the rings, we know more about the planet itself. Deep within the pale green atmosphere of Uranus lies a world as strange as any in our solar system, a world of murky gloom into which only unmanned space probes are going to be able to venture in the future.

Scientists estimate Uranus' atmosphere is 50 times more massive than ours and is composed primarily of hydrogen and helium (the most abundant elements in the universe) and methane. Unable to escape the planet's gravitational pull, these gases presumably remain from the primordial nebulosity that formed the sun and its family of planets.

In a class by itself

Uranus is not composed of rock surrounded by a relatively shallow atmosphere, like the Earth, nor is it almost entirely gaseous like Jupiter (SMITHSONIAN, September 1974) and Saturn. It seems to fall in between, with a rocky interior and a thick atmosphere. The centrifugal force of the planet's rotation causes the atmosphere to bulge at the equator and flatten at the poles.

Let's imagine that we are in a craft capable of penetrating Uranus' deep atmosphere. No one is certain what is down there but, based on a combination of the known facts and latest theories, we can make some informed guesses. Descending through the thin, diffuse hydrogen atmosphere we find a relatively clear area, possibly with fine dust particles suspended around us. The temperature rapidly drops to an incredible −350 degrees F at the tropopause. In this intense cold, molecules such as methane, ammonia and water have frozen and "snowed out" to lower, warmer levels where liquid and gaseous cloud layers may form.

Immediately below the tropopause lies a layer of thin cirrus-type clouds of poisonous methane that give

the planet its greenish color. At the base of these clouds the atmospheric pressure becomes somewhat greater than that at the Earth's surface.

Once past this methane haze, we find that the entire planet is blanketed by a thick, structureless cloud of ammonia crystals, hundreds of times denser than the thickest fog on Earth. The temperature here begins rising once again and ranges between about −225 to −150 degrees F.

Our descent past the ammonia clouds reveals yet another, very deep cloud layer, possibly consisting of water vapor. The temperature at the base of this cloud is a hot +200 degrees F. Above now lie hundreds of kilometers of hydrogen, helium and methane, whose combined weight produces pressures exceeding those a kilometer beneath terrestrial ocean surfaces.

Things get worse and worse

For thousands of kilometers beneath these murky cloud layers, hydrogen becomes increasingly thick and soupy under thousand-degree temperatures and pressures 600 times greater than at the floor of the Marianas Trench in the Pacific Ocean.

At the center of the planet lies a rocky-metallic core, 16,000 kilometers in diameter, and nearly as hot as the surface of the sun. Though extremely high temperatures prevail, the intense atmospheric pressure allows a thick mantle of dense, hot fluid—water, ammonia and related compounds—to surround the core. Together, the core and mantle account for about 80 percent of Uranus' mass—nearly 12 times that of Earth.

At present we don't know whether Uranus even has a surface. It is possible that, as the planet's atmosphere grows increasingly dense, it gradually blends into the fluid mantle without a distinct surface. If a surface does exist, it would lie between the atmosphere and mantle or between the mantle and core. Even a surface between mantle and atmosphere would be a most inhospitable place, with the pressure of the "chemical gumbo" atmosphere several times that at the center of the Earth's core and temperatures soaring to several thousand degrees F.

On Uranus, nearly three billion kilometers from the sun, the solar radiation is totally insufficient to drive winds at high speeds as it does on Earth. At the surface, if one exists, only an occasional light breeze blows at about two miles per hour. Virtually no feeble sunlight can filter down past the methane cloud layer. A very dark, windless world lurks beneath the shining pale green disk we see in a telescope.

This world is not a very likely place to find life as we know it. Terrestrial organisms would be poisoned by the scorching, ammonia-rich hydrogen atmosphere or be crushed by the pressures near the core. Conditions, however, are a bit less harsh in the upper atmosphere. One can speculate that floating among the dense water clouds in the Uranian atmosphere are tiny living creatures chomping merrily upon organic compounds, but it is only speculation.

If we were to turn around and ascend to a platform high above Uranus' obscuring atmosphere, we would find that our view of the sky is quite similar to that from Earth. All the distant stars and constellations look the same.

But because of Uranus' strange tilt, Polaris is not the North Star from Uranus as it is on Earth. In fact, the planet's north celestial pole lies halfway across the sky, in the constellation of Taurus.

Embedded among the stars and constellations is a very bright yellow star, the sun, reduced now by its immense distance to a tiny brilliant point of light. Though appearing starlike and 400 times fainter than when seen from Earth, some 1,200 of our full moons would be needed to match its brilliance in the Uranian sky.

On Earth we see five planets, sometimes with the unaided eye. From Uranus, however, no planet appears very bright and, except for Neptune and Pluto, all lie in the direction of the brilliant sun. There are nine planets known in the solar system but a Uranian astronomer might never discover Mercury, Venus,

The interior of Uranus remains a mystery, but science can make informed guesses based on its mass, density and the chemicals present in the upper atmosphere. In this cutaway, a rocky core is surrounded by a mantle of fluid ammonia. The atmosphere, which may be very deep, is composed largely of hydrogen and helium.

A schematic of the solar system (not drawn to scale) shows the potential trajectory of one of the two Voyager spacecraft launched last year. It will arrive at Jupiter in 1979 and Saturn in 1981.

Earth or Mars; they lie too close to the sun, which shines 600 million times brighter than Venus, the brightest of these four planets. From Uranus, Jupiter appears as the brightest planet but is still far from dazzling, since there are nearly 30 stars that outshine it in the sky. Saturn appears rather faint and is easily camouflaged by hundreds of brighter stars.

Only Neptune and Pluto could, at times, be located in the direction away from the sun. Neptune is visible to the unaided eye as a very faint "star," while Pluto is so extremely distant and faint that it cannot even be seen with a small telescope.

By far the most eye-catching objects in the Uranian sky are the planet's five moons. Each is much brighter than anything else in the sky except for the sun. The two nearest satellites (which are also the brighest), Miranda and Ariel, appear to zip through the stars in less than three Earth days, while the remaining three take longer, up to 13.5 days.

But that isn't the end of the strange environment. Uranus rotates "backward" on its axis: for a hypothetical observer on the planet, the familiar rising and setting of the heavens that we see from our backyards would be reversed. The sun would appear to rise in the west and set in the east. That is, of course, when the sun does rise and set. Because the planet takes 84 of our years to revolve once about the sun, and lies on its side as it does so, Uranus' northern hemisphere is bathed in continual sunlight for 42 years while the southern hemisphere experiences a 42 year night. As the planet eventually rounds the sun, this situation is reversed. For an observer on Uranus, the sun, after rising, would not set for many of our years at a time but instead would circle around the sky, moving up toward the zenith and then down again.

Above the equator on Uranus, barely visible against the dark sky and the brilliant stars of the Milky Way, stretches a thin, faint dark gray band—the strange ring system—passing directly overhead.

Late in the summer of 1977, two Voyager spacecraft were launched from Cape Canaveral to provide a close look at Jupiter, Saturn and possibly Uranus, as well as some of their moons. Now on the first leg of their long journey, the two Voyagers are speeding toward rendezvous with their primary targets: Jupiter next year and Saturn in 1980 and 1981.

If the Voyagers' mission to Jupiter and Saturn is successful, Voyager II may be aimed toward Uranus, a planet never before visited by spacecraft.

If it does get to Uranus (in 1986), one of Voyager's functions may be to obtain information on the newly discovered ring system. Flying perpendicular to the planet's equator, and hence to the rings, Voyager could send radio signals through the rings on their way back to Earth. Changes in the signals would tell researchers something about the size and distribution of the particles in the rings. Those radio signals, traveling at the speed of light, will require almost three hours to make the journey.

It was beyond the wildest imagination of Sir William Herschel on that night of March 13, 1781, that in only 200 years the green disk he saw would be visited by a machine capable of returning to us photographs and other information across nearly three billion kilometers of space. But surely he would be pleased to know that unexpected Uranus still can surprise.

If Voyager II is commanded successfully to continue to Uranus, it will arrive in 1986 for our first close look at planet, its moons and newly discovered rings.

HOW JEANNE LANVIN CREATED ARPEGE

1927 Paris in the twenties was vibrant with creative genius. Poulenc, Hemingway, Debussy and Picasso transfixed the world with new forms of artistic expression. The population was seized with post-war euphoria, luxury reigned and artists broke freely with tradition.

Against this background of creative abandon, Jeanne Lanvin and other great couturiers introduced some of the most celebrated perfumes of all times.

"I created Arpège to add to the charms of women what music adds to life," said Jeanne Lanvin in 1927, when she first presented her fragrance masterpiece to the world.

A bold new talent

Already renowned as a fashion designer, Jeanne Lanvin was one of the bold new talents fascinating Paris society. Artists and writers such as Stravinsky, Vuillard and Arthur Rubinstein would gather at her home, decorated by one of the great designers of the decade, Armand Rateau.

In her field, Jeanne Lanvin was herself an artist, working with her carefully chosen fabrics until she had achieved highly personal designs that were unmistakably "Lanvin". To enhance her dresses, she wanted a perfume that would also be a masterpiece — as exceptional, sublime and matchless as her gowns. Her wish was fulfilled by André Fraysse, a young perfumer who produced Arpège after three years of research. The fragrance, named spontaneously by Marie-Blanche de Polignac, Jeanne Lanvin's daughter and an accomplished musician, quickly became the sensation of Paris.

The standard "Arpège" bottle, recognized throughout the world.

The Arpège "Boule Noire"

1978 Today Arpège remains a masterpiece of balance and elegance, a provocative, irresistible fragrance that has proved to be what Jeanne Lanvin wanted above all — a timeless perfume. Heady yet subtle, Arpège is made from a jealously guarded formula that combines the rarest and most exotic essences. It is a floral harmony of over fifty scents, including Bulgarian rose, jasmine from South of France, and subtle notes of wood and amber.

Today also, Arpège reappears in its original "Boule Noire" bottle, the gold-painted black glass sphere created by Armand Rateau in 1927. Pure Art Deco in style, it evokes the luxury and drama of its age, and the perfume it contains continues to be treasured by women everywhere who value a masterpiece.

LPNY 78

The "Boule Noire" created for Arpège in 1927. The black glass bottle, hand-painted in gold, bears a design by Paul Iribe depicting Jeanne Lanvin and her daughter dressing for a ball. A luxurious gift in pure Art Deco style.

Unique Miklos bronze which belonged to Jeanne Lanvin. (Collection Félix Marcilhac)

Jeanne Lanvin's own dressing-table designed by Armand Rateau. (Musée des Arts Décoratifs, Paris)

LANVIN
PARIS

By Peter Wood

Business-suited saviors of nation's vanishing wilds

Smooth operatives of Nature Conservancy preserve our heritage through showing corporations how to do well by doing good

For most people, the word "conservationist" suggests a certain image: a hardy soul decked out with stout boots, backpack, hiking staff and a combative gleam in the eye. But the operatives of the uniquely successful preservation organization called The Nature Conservancy don't fit that image at all. Indeed, they appear to have been outfitted not by L. L. Bean but by Brooks Brothers, and if there is a gleam in the eye, it is less combative than businesslike.

Time and time again these buttoned-up environmentalists have beaten out developers in the tug-of-war over America's dwindling stock of wild places. Their organization—"the real estate arm of the conservation movement"—has consummated more than 2,000 land deals and has been responsible for saving more than 1.3 million acres of America's natural heritage. Where government agencies have been unable or unwilling to act, the vigorously private Conservancy has stepped in to preserve mountains, forests, marshes, prairies and islands from coast to coast. Most significantly, it has achieved its goals while engendering the cooperation rather than the antagonism of corporate industry.

At the Arlington, Virginia, headquarters of TNC (as it calls itself) a distinct hum of purpose pervades the premises. To a man and woman, the Conservancy staff, an impressive blend of scientific, legal and business talent, knows precisely what it is up to. First, *identification* of the nation's remaining ecologically significant lands. Second, *acquisition* by purchase or gift. And third, *stewardship,* the maintenance of lands in their natural state, in perpetuity.

Part of the reason for TNC's success, of course, is that donations of land or money are tax deductible within limits. And, of course, the $10 annual dues paid by TNC membership (currently 60,000) are also tax deductible. In short, TNC raises funds the same way as the Red Cross, the World Wildlife Fund or any university—through public appeals, special fund drives and hard digging wherever it senses there may be money and a willingness to help. Increasingly, this means from among the ranks of former environmental suspects. International Paper, Union Camp, Georgia Pacific, Anaconda Copper, Gulf Oil and Metromedia have all donated, or sold at prices below market value, thousands of acres of choice wilderness to TNC. Other companies such as IBM, Atlantic Richfield and Ford have given or lent millions to the cause, while 182 businesses are listed as corporate members, paying a minimum of $1,000 annual dues.

What TNC does today is in no way simple, if only because nearly every one of the roughly 200 projects it takes on each year is a special case. Nevertheless, the basic strategy is the same. TNC demonstrates to businesses and private donors how they can do well by doing good—how a gift of land or money, which, because of tax benefits may cost them little, can save an endangered habitat.

TNC seeks a variety of havens for its acquisitions. Roughly half are passed on, usually to a government agency with demonstrated stewardship capabilities, but also to local conservation groups and town or county governments.

Sometimes the transactions become so complicated they would make a Wall Street firm feel proud. Take the case of a reserve for the endangered sawback turtle in Pascagoula, Mississippi. The state wanted the land for a 32,000-acre wilderness preserve, had the money to buy it and a framework in which to hold it—a Natural Heritage Program which had been designed for them by TNC. But the company that owned the tract refused to sell. The Conservancy simply bought

With his *Wall Street Journal* at the ready, Nature Conservancy President Patrick F. Noonan (right foreground) and his top lieutenants take time out for a rare visit to the kind of place they try to save. Clockwise from the left are L. Gregory Low, Thomas Beers, Ray M. Cutler, David E. Morine.

Free-lancer Peter Wood is a seasoned traveler in wild places. His recent book, Running the Rivers of North America, *is about white-water sports.*

One of TNC's major acquisitions is 90 percent of Santa Cruz Island off Southern California coast.

controlling interest of the company—something that the state could not legally do—voted a dissolution, and turned the land over to the state of Mississippi.

When the Conservancy does keep title to land, it makes strict provision that the investment will be repaid and that there is a self-sustaining maintenance program. An example is Mianus River Gorge, in Westchester County, New York. It was the first of TNC's acquisitions, and its purchase marked the beginning of the organization as it exists today. TNC had its roots in the Ecological Society of America, which established in 1917 the Committee for the Preservation of Natural Conditions, a small group of naturalists and scientists who were alarmed even then by the depletion of our natural areas. In 1946, the Committee became a separate entity—the Ecologists Union, which encouraged other groups to establish natural areas. And by 1953, it found its first independent project as TNC at Mianus, a beautiful piece of hardwood forest only about 30 miles from New York City (p. 85).

Working out of their living rooms, a local volunteer committee raised most of the money needed to make the purchase, and got a final $7,500 through old-school-tie connections from a Mellon family philanthropic organization.

Since then the Mianus River Gorge preserve has grown from 60 to 362 acres, without any further financial aid from TNC. Vigorous local fund raising and gifts from private landowners have accounted for all of it. There is a chief warden-naturalist who lives nearby and watches over the preserve. He receives a salary. The rest of the considerable work of stewardship and fund raising is carried on by volunteers.

TNC has grown rapidly since those early days. The operating budget ran to $2.8 million in 1977, and this does not include the cost of buying land, which topped $135 million last year. There are 210 on the payroll, about a third of them working out of the Arlington headquarters, the rest spread through regional offices, field offices and state chapters. There are eight lawyers on the staff and more than a few others with master's degrees or higher, mostly in business administration and the sciences. The great majority of staff members are in their twenties or thirties.

There is also a board of some three dozen governors, most of them men and women of substance, including the obligatory du Pont and Rockefeller, with strong connections in the world of industry and finance. These connections with the movers and shakers of the country represent TNC's most valuable asset. A word

Under a complex agreement, the Conservancy bought 15,000 acres, gained control of another 40,000.

on the golf course or over lunch may ultimately be worth millions in conservation lands.

But however much the board is able to smooth the way, it is the Conservancy's president, Patrick F. Noonan, who sets the fast pace and provides the leadership. Appropriately, no one typifies better the Conservancy's current persona. Noonan, who has master's degrees in both business administration and city planning and is a professional appraiser and licensed real estate broker, took charge of the organization in 1973, when he was just 30. Five years later one is still struck first by his youth, and after that by the cut of his jib—very square. There simply is nothing about the man that hints of a desire to slog through bogs or salt marshes or to climb to the tops of high mountains. Of medium height, a bit overweight, he wears his fair hair a touch long, perhaps, for someone in finance—but probably all right for a salesman, which, after all, may be his strongest suit. "We are in the real estate business," he says flatly. And however he might comport himself on a trail with a 60-pound backpack, on his own ground he is fast talking and as sure of himself as a mountain goat.

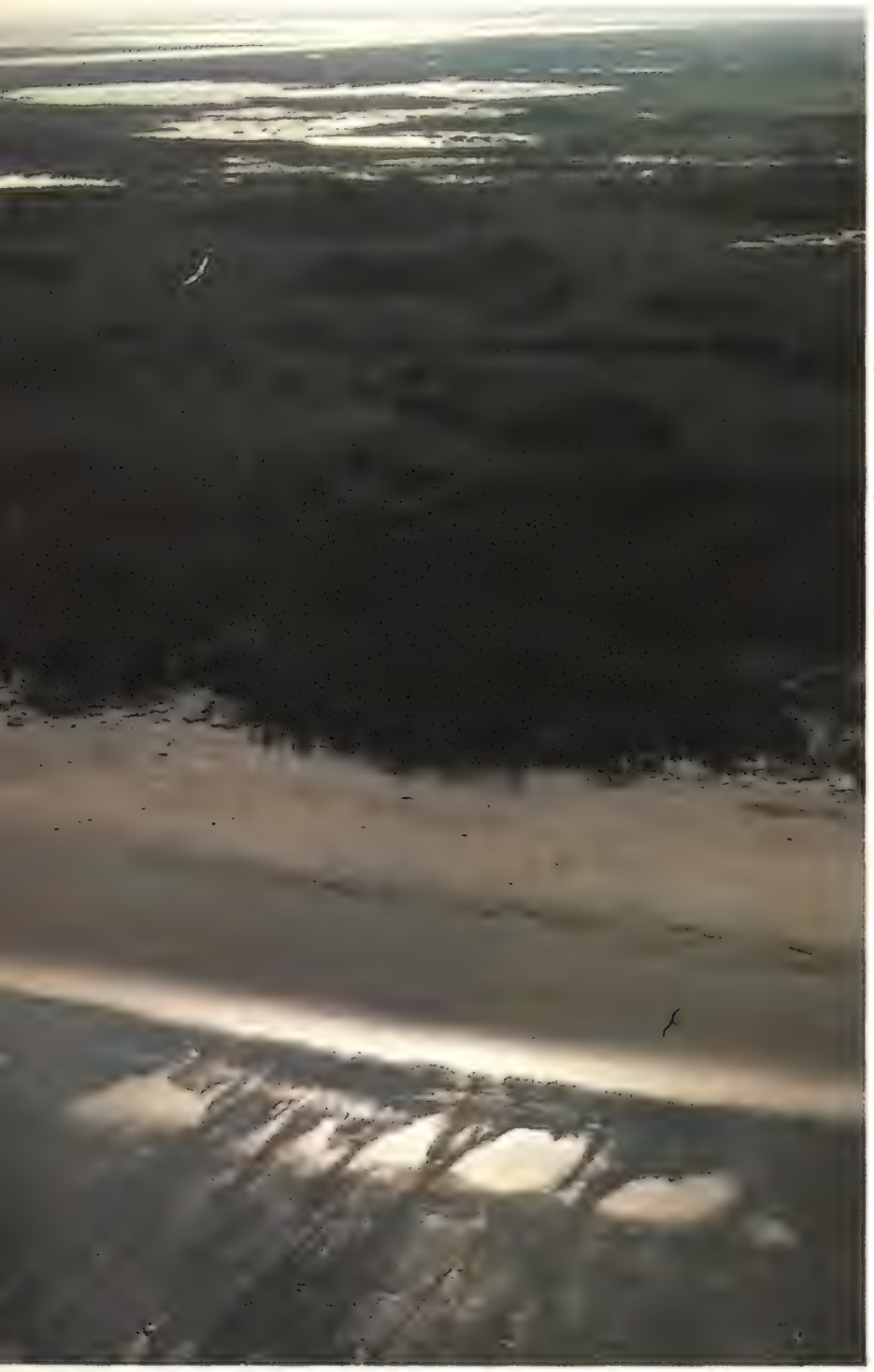
"Land-use decisions are still made on the basis of dollars," he says, speaking of the tax advantage TNC's nonprofit status gives to potential "clients." "And we usually can make an attractive deal at an average of 70 percent under market value." Of developers and industry: "We are in a conflict-avoidance situation. Ignorance is the enemy, not the developers. If we can pinpoint those ecologically significant regions that remain in this country *before* a developer or industry wades in, we can save them. And we can do so advantageously to both parties, the future generations of Americans *and* the business interests involved."

Bargain sales in barrier islands

Ignorance certainly was at work in 1970 when a development company announced its intention to invest millions to turn three of the barrier islands off the Virginia coast—Smith, Myrtle and Ship Shoal—into "King's Beach," a sprawling, luxurious retirement and recreation community. The low, wilderness islands provide a natural breakwater against the Atlantic, protecting the bays and salt marshes behind them. These waters are a spawning ground for an incredible variety of wildfowl, fish, mollusks and crustaceans and are of inestimable value to sportsmen and commercial fishermen. The development intended for this sandy wilderness included a causeway to the mainland, countless residential lots—each with its own outlet to the ocean—yacht basins, hotels, private clubs, shopping malls, convention centers, business and professional buildings, an airport and a seaplane facility.

Learning of this, and wanting to establish a foothold in the area, TNC quickly bought nearby Godwin Island. After acquiring Godwin Island, TNC began months of intensive negotiations with the Smith Island Development Corporation. Then, with the "money market" in a slump, the prospect of insufficient fresh water for the grandiose plans, and tremendous pressure from other environmental groups, the corporation decided to back down. It sold the three islands to the Conservancy for about $180 an acre at a bargain sale.

A bargain sale is one at below appraised market value. When made to a nonprofit organization, the



Parramore Island is part of a 60-mile-long chain the Conservancy has saved along Virginia's coastline.

seller may claim a tax deduction for the amount of the difference between the seller's price and the appraised market value. If the seller is in a high tax bracket to begin with, he may receive approximately the same return as if he had sold the property on the open market. Bargain sales are one of the most effective levers the Conservancy has to pry loose land it wants. The $1.25 million needed for the purchase was provided by the Mary Flagler Cary Charitable Trust, a New York philanthropy.

Eventually, through gift and purchase, the Conservancy would acquire the 13 barrier islands that form the Virginia Coast Reserve—they stretch 60 miles from the Virginia-Maryland border to the mouth of Chesapeake Bay. In the case of one of them, Metomkin, which was owned by a developer who refused to consider any offer from TNC, it was necessary to set up a bogus corporation. Offshore Islands, Inc. bought the island at going market value, donated its only asset, Metomkin Island, to the Conservancy, and quickly closed its doors.

One of the last remaining natural seashores in the country, the barrier chain is a magnificent diadem in the Conservancy's collection. An ecological and social survey of the islands—also funded by the Cary Foundation—convinced the Conservancy that it was better suited than any government agency to protect these fragile outposts. Within their stewardship program, the Virginia Coast Reserve has become both model and laboratory. As at Mianus, the public is welcome on the islands during daylight hours to wander the miles of pristine beaches. But it takes a boat to get there, and one can walk for miles along the beaches and not come upon a footstep other than one's own.

Good hunting in the executive suite

If it was foundation money that turned the trick at Mianus Gorge and made possible the purchase of Virginia's barrier islands, the hardheaded world of business also promises rich rewards for TNC. It is significant that in a prominent spot on the wall of Noonan's corner office there hangs a plaque reproducing a 1973 editorial from the *New York Times*. It congratulates the Nature Conservancy for its part in persuading Union Camp to donate for a nature preserve 50,000 acres of its holdings in the Great Dismal Swamp which straddles the Virginia-North Carolina border. "The Union Camp Company," the editorial concludes, "has set an example which other industrial units can follow to the enhancement of their own reputations as well as to the country's advantage."

So public a pat on the back brings beatific smiles to the faces of public relations directors. It also means that Noonan, chief mover in the Union Camp deal,

In South Dakota, the Conservancy owns 7,600 acres of prairie, where it conducts research on the preservation and restoration of grasslands. This area is home of the endangered ferruginous hawk.

can find a welcome in the president's office of practically any big corporation in the country. Which, it turns out, is pretty much the way he spends most of his time.

Like the meticulous organization man he is, the Conservancy's president keeps a careful record of these activities. A day spent recently in New York City was followed up with this trip report: "9:30 A.M.—Messrs. Noonan, Northrup [Brad Northrup, director of the Eastern Regional Office based in Boston] and Payne [John Payne of the New York office] met with the corporation chairman, and delivered the hawk picture [a handsome color photograph of a mother ferruginous hawk protecting her brood]. He was appreciative and said he would hang it in a prominent place.

"We subsequently discussed a gift of $75,000 to $150,000 worth of tradelands in Connecticut which we will sell to the state and net $75,000 for LPF. [This is the Land Preservation Fund—separate from the revolving fund. Product of a special drive begun in 1976, it now stands at $12 million, with a goal of $20 million. It is to be used for large land acquisitions.] He was interested in this and we hope that more might develop from this meeting.

"10:30 A.M.—Noonan, Northrup and Carlin [William Carlin, head of the New York Development Office] met with oil company official. Briefly brought him up to date on Santa Cruz Island [a major recent acquisition]. In addition, Brad will send some information for publication in the company's mailing that goes to their employees regarding our preservation in the Greater Westchester area and Connecticut."

The memo continues through the day with three more meetings, one with the lawyer of a former generous donor, who explained that because of a sudden drop in the man's stock, his net worth has been cut drastically. The only possible major gift from him now would be via a life income trust (a gift to the Conservancy that continues to pay dividends to the donor for the remainder of his life). "Action: Noonan to write him a nice letter suggesting this and Carlin will follow up, as appropriate."

And so it went through the day, with a final meeting at 4 P.M.—after which, presumably, Noonan was able to catch the shuttle back to Washington. Or he may just as likely have flown on to Minneapolis and spent the night doing paper work in his hotel, preparing for another round of meetings the following morning.

"We are all fund raisers," explains Brad Northrup, whose enthusiasm, youth—he is 34—and straightforward professional approach are very much in the Noonan mold. Three of us—Northrup, Eve Endicott, a Yale Law School graduate who is TNC's field director for New York, New Jersey and Pennsylvania, and myself—were seated next to one another on the 6:50 A.M. Allegheny flight from Boston to Albany. The purpose of the two-day trip was to look over some parcels of land that Tim Barnett, who heads TNC's Adirondacks chapter, had identified as both "ecologically significant" and possible to acquire. One of the areas belonged to the International Paper Company, whose extensive holdings make it one of the largest private landowners in the United States. International Paper (IP) had already expressed its willingness to cooperate

with the Conservancy with the donation, in 1976, of 26,000 acres of marsh and wooded uplands in Georgia. A second area, the land that TNC coveted most, was 2,800 acres encompassing a steep rocky ridge above a small pond. This parcel belonged to a small lumber company, and it contained one of the few known golden eagle nesting sites in the Adirondacks. Because of its dramatic location, deep within one of the least disturbed areas of the Adirondacks, Barnett had scheduled it as the finale of our tour.

The official visit began in the offices of International Paper in Glens Falls, near the southern boundary of the Adirondacks Park, a 9,000-square-mile, largely wilderness checkerboard of public and private lands, inside which all the parcels lie. Here we were met by Barnett—39 years old, dark, mustachioed, and with something of the look of a Canadian voyageur.

Our host was Donald Whittemore, former head of IP woodland operations in New York State. Whittemore introduced us to two foresters who would accompany us on our inspection later that day. One was Douglas Charles, a land-use specialist from IP's New York Office. Charles came with the blessing of IP's vice president for wood products and resources, John Stephens. Stephens' appraisal of TNC could not have been higher. "The professionalism of the team they have put together at all levels is admirable," he explained recently. "They understand the balance there must be between economics and conservation. With us they have total credibility." An outfit like IP is constantly being barraged with requests (and threats) from various conservation organizations, local and nationwide. Stephens now channels all these through the Conservancy.

Don Whittemore was more skeptical. Giving land to the Nature Conservancy, he pointed out, might seem like excellent public relations to the head office in New York, but not here in the Adirondacks. In

Golden eagles' nest (above) perches on cliff near Adirondack pond TNC hopes to preserve (right).

1977, average unemployment was about 12.5 percent. The local people see such donations as little more than a tax dodge. Whittemore himself saw it as "eroding my productive timber base." Local sportsmen were also against it, he said. Hunters and fishermen can rent permits from IP, and they fear the Conservancy will post the land it acquires.

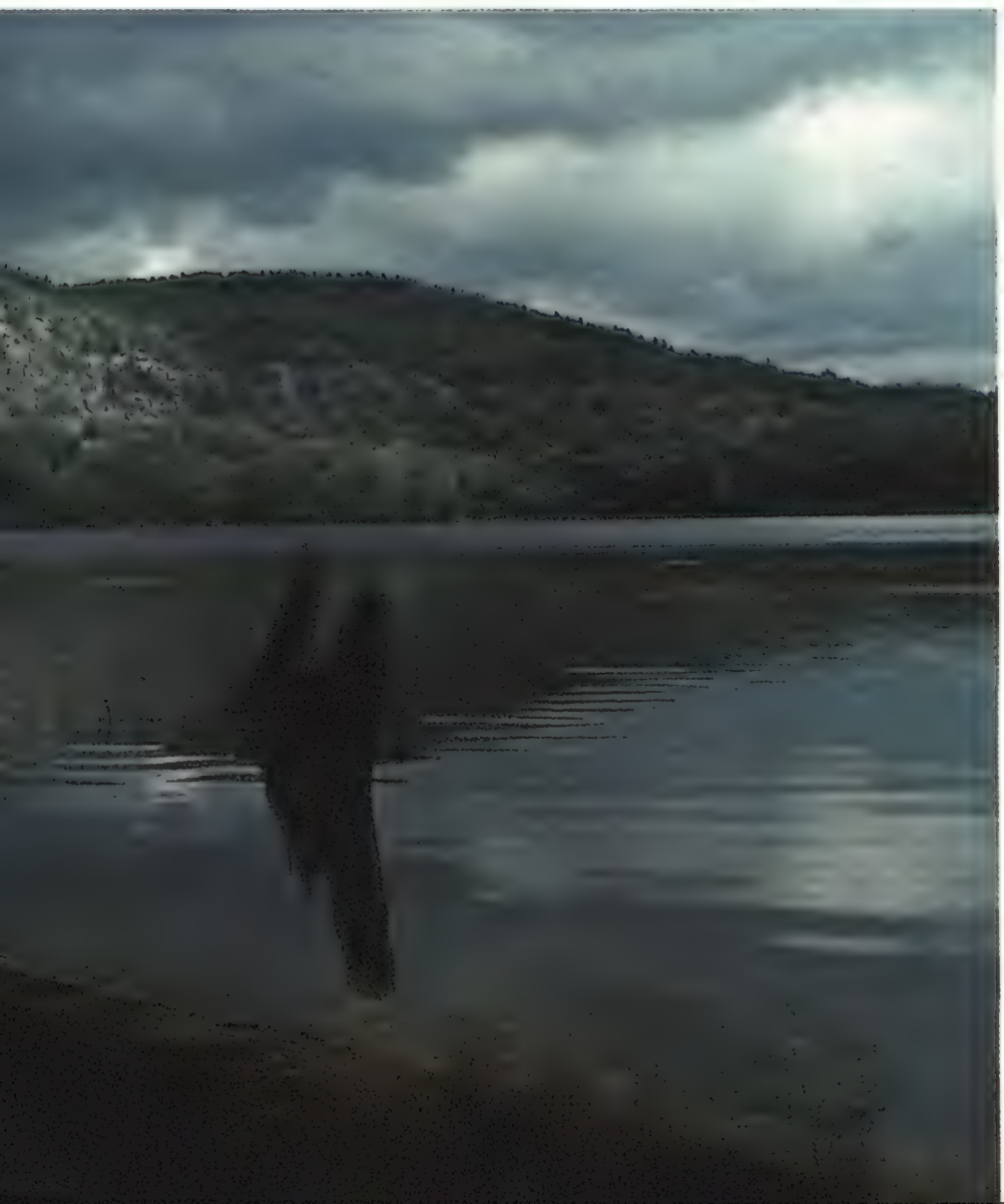
Northrup answered Whittemore's professional objection by pointing out that generally the land the Conservancy is after—wetlands, mountaintops, river gorges that might support unique and endangered communities of plants and animals—were the sort that foresters consider marginal at best. As for the land's coming off the local tax rolls and the objections of local hunters, one strategy was for IP to give TNC a conservation easement on the land. What this means is that IP maintains title, is still able to cut timber, grant hunting permits, pay taxes and even sell the land, but the company gives up forever the development rights. And although that may not be exactly what TNC considers optimum, it would be much better than nothing.

Nor would it be the first time, Northrup continued, that the Conservancy had been forced to compromise. "Take hunting—our standard posting is a 'no hunting' sign—but we temper that with reality. In Maine, for instance, we don't post our holdings—if we did we would never get back into the state. We depend on local game laws for protection. What's more, some of northern Maine is even more depressed economically than here. In most of Maine we pay all the regular property taxes."

Before the meeting broke up, Northrup, Whittemore and Charles were exchanging views on business philosophy. They were not far apart, and it was obvious that Northrup had struck a chord that would elicit maximum cooperation in the future.

The rest of the day was spent driving deep into the park to look over two marshes IP owns and Auger Falls on the Sacandaga River. The falls themselves are on state land but the trail to them crosses IP holdings. One passes through a deep, somber forest that opens suddenly to reveal the cataract. The concern of the Adirondacks chapter was that IP might one day sell that particular piece of timberland to a developer. It would kill forever the dramatic impact of the place.

We spent the night at Saranac Lake and the next morning rendezvoused with one more IP forester and with Greenleaf Chase (below). It had been Chase, a Conservancy volunteer and member of the board of the Adirondacks Conservancy Committee fund, who became aware of the golden eagle nests in the area. As if his name were not enough, in Chase one found at last a Nature Conservancy operative who fitted the traditional part. Square of jaw and lean as a long-distance runner, Chase, now 66 and retired, spent 34



The nest was found by Greenleaf Chase, who, like many Conservancy field men, is an unpaid volunteer.

years in the Adirondacks as a wildlife biologist with the New York State Department of Environmental Conservation. He is a local expert on the golden eagle and can speak with concern—though without sentimentality—about numerous instances of those magnificent birds being shot by hunters and farmers. Walking and talking with him, one soon recognizes in Chase a man whose rapport with nature is exceptional.

With Chase our small group of foresters and TNC personnel took a look at a golden eagle's nest, this one in a venerable white pine standing beside a boggy lake. In the wide crotch a pair of golden eagles had placed a few sticks. That was perhaps 20 years ago. Since then the nest has grown to the size of a small tree house.

Golden eagles, Chase explained, mate for life. They usually return to the same area to nest year after year, provided there is sufficient food. The densely forested Adirondacks are not prime hunting habitat for eagles. What Adirondacks eagles depend on for food is a certain amount of carrion. A hard winter for deer will leave occasional carcasses when the snow melts. Such a winter means a bountiful spring for eagles. But the female eagle is a finicky nester. She likes to have as many alternative sites as possible. Thus, within a 50-square-mile territory, a pair of eagles maintains several nests. Each spring the male reestablishes possession of the nests by decorating them with a branch or two, even while his mate is elsewhere. Some seasons, however, the eagles don't show up at all. When one or both are shot, as they all too frequently are despite laws that protect birds of prey, it may be years before another pair takes over the territory, but when they do, it is likely that they will take over the nests of the former tenants. As far as Chase can tell, the nest near the pond (p.82) has remained on the active list.

The pine tree nest had not been used recently, but eagles might return at any time. The tree stood only about a quarter mile from an IP logging operation moving in its direction. Of course the foresters were willing to spare the single pine, but TNC wanted more than that. In order not to scare the eagles away permanently, a certain amount of forest should be left around the nest. How much was a matter for experts to say and for IP to grant. This particular land was, after all, a prime resource base.

On the plane back to Boston that evening, Northrup explained what he believed would be the outcome of the trip. One of the two pieces of marshland, along a riverbank, has no timber value and would not need the Conservancy's protection, and the other parcel, a freshwater marsh, would need further negotiations to determine its future. Auger Falls might be protected by a conservation easement. As for the nest in the white pine, once expert advice had been taken on the amount of protection needed, Charles would see that the local foresters were instructed to keep their operations at a safe distance. The pond nest site, which we had visited at the end of the second day, required a special negotiation with the smaller timber company. And that would be undertaken. Then, before the 45-minute flight was over, Northrup opened his bulky briefcase and was deep in paper work. Could he have forgotten so soon the spell cast a few hours earlier, when we had stood atop a rocky ledge above the eagles' nest, at a spot Chase declared to be his favorite in all the Adirondacks?

At our feet grew a small clump of ladyslipper orchids. The green-mantled mountain and silver bands of open water receded to a misty horizon. From where we stood it so happened that no sign of Man intruded, no road or building or smoke rising. It took a wrench of the imagination to make oneself aware that across that apparently trackless wilderness lay a constricting net of property lines, timber rights, mineral rights, water rights, hunting leases and development easements, plus a bewildering number of provisions laid down by overlapping layers of township, state and federal laws. Yet it was so. And whatever the quality of outrage one might feel at the thought of this magnificent vista being broken by highways, industrial stacks and cabin communities, it would remain a subject for impotent rage without the expertise of people like Endicott, Barnett, Northrup and Noonan—a new breed of environmentalist eager and able to protect our national heritage using the same tools and methods as those who might alter it forever.

Conservancy's first acquisition, Mianus River Gorge, is spot of wilderness about 30 miles from New York City.

LIGHT UP HER LIFE--
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You are part of America's "Third Century" society – so is she. It is the beginning of a New Era – a fresh start. An Era with its own new symbols.

Such a symbol was created when America's Third Century officially began, back on April 18, 1975. Our former President, Gerald R. Ford, officially marked the start of America's third 100 years as a nation, in a solemn ceremony held at Boston's famous Old North Church. Perhaps you saw this ceremony on network TV and you saw the President light the "Third Lantern for America's Third Century." Perhaps you even recall the wonderful spirit that prevailed at the time.

The Lantern used in the ceremony was an authentic Sterling Silver full-size re-creation of the one remaining lantern of the two famous signal lanterns used back in 1775, when Paul Revere made his famous ride. The relic of the original, an outstanding example of 18th Century Colonial craftsmanship, is on display at the Concord Antiquarian Society Museum in Massachusetts. It is seen and admired by many thousands of visitors every year.

The ceremonial lantern is an impeccably accurate, detailed copy of this very historic artifact, so highly cherished by the Museum. When the Limited Editions Collectors Society was selected to make the re-creation, our artisans went to the Museum where they made finite drawings, detailed photos, and wax impressions of the original. The re-creation *had to be perfect*. After all, the Paul Revere-Old North Church Lantern is such an important national symbol – it marked a most critical moment in our nation's struggle for Independence. It's warning glow flashed from the Steeple of the Old North Church and played a vital role in altering forever the course of history. It is the "light" that gave birth to our nation.

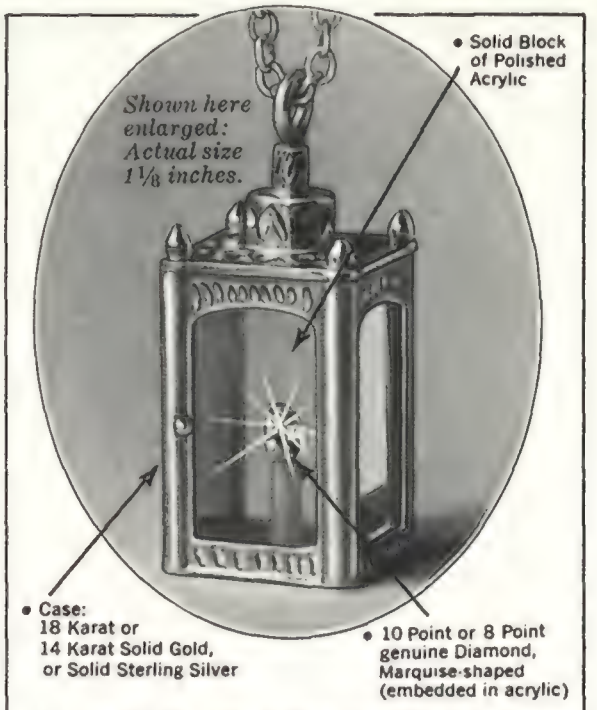
Since that memorable Anniversary ceremony took place, the Society has issued a number of similar full-size re-creations of the famous lantern, as official commemoratives. A portion of the proceeds from the sale of each large lantern goes into a special maintenance fund at Boston's Old North Church. They have been offered in Registered and Limited Editions and crafted in copper, brass, and antiqued or polished pewter finishes, plus a very limited number in Sterling Silver. These have been and are still being purchased as important collectors pieces, by Americans everywhere.

A UNIQUE LIMITED EDITION, NOT AVAILABLE IN STORES

Because of the response to our offer of the full-size reproductions, we introduced (earlier this year) a Limited Edition of a new, beautifully-crafted "miniature" of the famous artifact – in the form of an exquisite piece of jewelry – our *Third Century Lantern Pendant* – an extraordinary gift item. It was cast using 18 Karat Solid *Gold* and utilized a 12 Point Diamond. Shortly after our first advertisement appeared, there was a large increase in the cost of rough diamonds announced by DeBeers. The price of the Pendants had to be increased approximately 25%. Nevertheless, within ninety days, the entire Limited Edition of 500 units was sold out!

The molds and tools used for making that particular Diamond Pendant have now been destroyed, and the Limited Edition is closed. However, because of the many requests we have had for this unique jewelry item, we have designed a smaller more delicate version of this unusual Pendant, especially appropriate for this season's new fashions.

We offer you an opportunity to be among the first to obtain this new Limited Edition piece. It too is exquisite, and it makes a wonderful gift for birthdays, anniversaries, plus other important occasions, and is especially appropriate for the upcoming season of Holiday gift giving. Wearing this Pendant subtly demonstrates pride in America's past and confidence in its future, all as our nation embarks on its Third Century. The Pendant makes a unique, charming, and thoughtful gift, one of the finest and most meaningful that you can ever give. What pleases a woman more than a gift of Gold or Silver and Diamonds? She'll be enchanted when she first sees it and delighted as she displays her Third Century Lantern Pendant. It's a great conversation piece.


Shown here enlarged: Actual size 1⅛ inches.
• Solid Block of Polished Acrylic
• Case: 18 Karat or 14 Karat Solid Gold, or Solid Sterling Silver
• 10 Point or 8 Point genuine Diamond, Marquise-shaped (embedded in acrylic)

A detailed re-creation of the historic Paul Revere - Old North Church Lantern — the famous "light" that gave birth to America — crafted in the form of a magnificent Diamond Pendant — with its gemstone encompassed in 18 Karat or 14 Karat Solid Gold or Sterling Silver.

INDIVIDUALLY HAND-CRAFTED

Similar in styling to the original, larger Pendant, this new smaller *Lantern Pendant* also comes in several types of precious metals. The new Limited Edition version is offered in 18 Karat Gold with a delicately worked candle and flame, permanently embedded in a block of crystal-clear, polished acrylic. The flame itself, is a stunning 10 point Marquise-shaped diamond! A dazzling gem-stone which perfectly symbolizes the warning "light" on that fateful night in 1775. To assure their rarity, this new Edition is being tightly restricted to just 1,250 pieces – or just 25 for each of America's 50 states.

The Pendant is sturdy and solidly constructed, yet very comfortable to wear. The Diamond, permanently locked into the acrylic block, cannot be lost, and it will keep its lustrous sparkle forever.

A Registered Edition is also available — in 14 Karat Solid *Gold* or Solid Sterling Silver with an 8 point diamond flame. When the Limited Edition is sold out, however, the dies and molds will be destroyed and both Editions will be closed, forever.

The Registered Edition can also be purchased — at a much lower cost — with a satin yellow crystal flame instead of the diamond flame. In fact, you can own this remarkable Pendant for as little as $95.

Each Pendant, in both Editions, is individually hand-crafted and cast by skilled goldsmiths and silversmiths. Each is hand-assembled and polished with the utmost, meticulous care. Twenty-three separate, hand operations are required to assemble each Pendant prior to final inspection by the Master Goldsmith. Every Pendant comes with either a 12 Karat Goldfilled or Sterling Silver chain, 24 inches long, which can be easily adjusted for casual or dress wear.

The Third Century Lantern Pendant is an extremely outstanding jewelry value. A diamond ring using a similar size and quality of diamond, plus the same weight content of gold or silver, would cost considerably more. You can go to any jewelry store and purchase a variety of mass-produced pendants using similar materials. You will find that most will cost more — and some much more — than the Third Century Lantern Pendant. However, none will have our Pendant's unusual combination of handcraftsmanship, rare beauty, unique design, historical significance and value.

To subscribe to this offer, just fill out and mail the coupon below — or better still — call us, toll free, at the number shown in the coupon. And, of course, you may charge your purchase by using one of the major credit cards.

UNCONDITIONAL GUARANTEE

Guarantee? We invite you to examine this remarkable Pendant value without any obligation whatsoever. Look it over. If you are not completely satisfied when it arrives, send it back for a full refund (we'll also reimburse you for whatever it costs you for postage and insurance to return it). Or, even after you have given it to that special person, if you find that she is not totally pleased, we'll buy it back. In fact, due to the very limited availability of these Pendants, we'll be glad to repurchase yours anytime within one year from the date of your order. After all, in the long run, we don't expect Gold, Silver or Diamonds to lose their value — they never have.

There is another advantage to the extended, one-year guarantee. You may acquire the Pendant *now — before the Editions are closed,* and still present it as a gift at a later date — as late as Christmas, or even next Valentines Day in February of 1979 or Mother's Day of 1979.

There is a simple explanation for this outstanding Pendant value. The Limited Editions Collectors Society makes all of its exclusive offerings *directly to the public.* Its products are not distributed through retail stores, catalog houses, or mail marketing firms, who must add "markup" to the items they purchase for resale.

The Collectors Society is a private organization founded by a group of avid collectors, art lovers and historians, including some who have distinguished themselves in the fields of Arts and Letters. Since its founding in 1972, the Society has received a number of important awards for excellence. In addition to creating the official Old North Church commemorative Lantern, used by former President Ford, the Society has been commissioned by numerous other well-known, non-profit organizations to create, and offer for sale, their official commemoratives. Included, among others, are offers sponsored or endorsed by The Winston Churchill Foundation, The ARBA, an agency of the U.S. Federal Government, The Council of the Original Thirteen States, the United States Capitol Historical Society and The Freedoms Foundation at Valley Forge.

The Third Century Lantern Pendant. It truly is a captivating piece of jewelry and a gift sure to be treasured always. It is not available in stores, nor will we accept orders from stores wanting to purchase these Pendants for resale. As with the full-size Lantern reproduction, and the larger Pendant offered earlier this year, part of the proceeds from the sale of each of these new Pendants accrues to the benefit of a special Maintenance Fund at Boston's Old North Church.

To avoid possible disappointment or needless delay, we recommend that you mail your completed order coupon just as soon as possible, before the small Limited Edition is completely sold. To make *sure* a Pendant is held in reserve for you and to ensure even speedier delivery, we urge you to call our Mail Order Service Center, toll free, 800-225-5252, in advance of mailing your order.

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Our first offer was sold out within 90 days. As of November 15, over half of the pieces in this new Limited Edition were already reserved. The readership of *Smithsonion Magazine* now exceeds 3,000,000 people, so we urge you to act promptly. Due to the recent rapid rise in the price of Diamonds, we can only guarantee these prices for 30 days beyond the date of this publication.

If you wish to purchase the Pendants for gift-giving, send us a separate note with names and addresses, and we will gladly giftwrap them and ship them anywhere — with a gift card from you.

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By Piri Halasz

An artist's world of passion, pain and weird beauty

The largest showing of the compelling work of Edvard Munch ever to be seen in the United States is at National Gallery of Art,

"Spanish Dancer. 1 Franc," read the sign outside a cabaret. The year was 1889, the cabaret much like those Degas and Manet had depicted with such gaiety only a few years before. Paris was the city Monet and Renoir had chronicled under sunny skies, but the mood was changing. In France and elsewhere, a cloud seemed to be drifting across the sun.

The young man entering the cabaret was Edvard Munch, a thoughtful, shy Norwegian lately come to the capital to study painting. He caught a glimpse of a couple in the crowd. "A strong naked arm," he jotted down in his diary, later. "A tanned powerful neck—a young woman rests her head on the arching chest. . . . I would give form to this as I now see it, but envelop it in a blue haze. These two at that moment when they are no longer themselves, but only one of thousands of links tying one generation to another generation. People should understand the sanctity of this and take off their hats as if they were in church. . . . No longer would interiors, people who only read and knit, be painted. There should rather be living people, breathing and feeling, suffering and loving."

How well Munch realized these then-radical ambitions can be assessed at the National Gallery of Art in Washington, where the most comprehensive exhibition of Munch's work ever seen in the United States will be on view from November 11 until February 19. Included in "Edvard Munch: Symbols and Images" are some 70 paintings and 125 drawings, watercolors, woodcuts, lithographs and other graphics.

The first room of the exhibition is dedicated to a re-creation of the cycle, "Love," that Munch exhibited in Berlin in 1895. The exhibition incorporates early and later great versions of the subjects that obsessed him over many years—the mystery of Norway's long winter nights, and its luminous "white nights" of summer; the men and women caught beneath them in passionate attachments; the figure of Woman as a tense and inhibited virgin, and as an abandoned sphinx; the tension of separation and the alienation of urban dwellers, and the unremitting despair of the individual left entirely to himself.

This particular, powerful Nordic vision came as a shock when it was first presented. Munch's figures still seem crude, angular and nightmarish when contrasted with the polished cheer of the Impressionists. However, Munch's art was equally representative of his times—the troubled era of the fin de siècle, when poets and artists turned inward from nationalism and realism into psychological probings and exotic religions.

Munch's achievement heralds much art of the 20th century, particularly German Expressionism. His approach reflects a uniquely Northern European tradition, a strain of nature worship allied to spiritual exploration that has been traced from the German Romantic painters of the early 19th century on to American Abstract Expressionism.

According to the University of Chicago's Reinhold Heller, the United States' leading Munch scholar, "Munch reflects the Northern tradition in terms of

Munch-Museet, Oslo

Of intense psychological power and a work of fine art this is Munch's *Self-portrait: by the Window.*

Munch-Museet, Oslo

Anxiety, 1894. Already, Munch had declared his major message, the graphically articulate delivery of inner anguish. French critics thought title superfluous: it characterized so many of his works.

Göteborgs Konstmuseum, Sweden

The artist's mother died when he was five. His beloved sister Sophie died of tuberculosis at the age of 15, when Munch was 14. Throughout his life he was obsessed with thoughts of human helplessness, as portrayed here in *The Sick Child,* 1896, one of the earliest versions of the theme.

content and even style. He's definitely not a French painter. His work has a lot to do with what was being done in Paris, but the strong emphasis is on content and in finding a highly volatile pictorial equivalent to themes like anguish and despair."

Munch's introduction to these themes came early. He was born in 1863 on a farm in Løten, the second of five children. Their father, a doctor, had always been stern and devout, a practical Christian who treated indigent patients for nothing in the slums of Christiania (which later took back its ancient name of Oslo), where the family moved when Edvard was a baby. His mother died of tuberculosis when he was five. His father became melancholy and reclusive, spending days and evenings in his own room in prayer. Munch himself was often ill. His elder sister, Sophie, died of tuberculosis when she was 15 and the artist a year younger.

In 1881 he entered art school. Christiania was a small city, of some 80,000 inhabitants, and artistically provincial, taking its cues from painters who had studied abroad. Christian Krohg, whom Munch most admired, was an apostle of the dark, rich realism developed in Paris by Courbet and the early Manet. The canvases Munch painted at first were in this vein.

He became involved with what was known as Christiania's Bohemia—a set of artists, writers and poets whose principal spokesman was an anarchist named Hans Jaeger. Jaeger preached a heady brand of revolutionary social conduct derived from Darwin, Zola, messianic socialism and who knows what all; he advocated free love.

One of Jaeger's "experiments" involved a triangle of himself, Krohg and Krohg's wife, Oda. Munch got caught up with a lady named Milly Ihlen, wife of Dr. Carl Thaulow. "God and everything else was overthrown; every one danced in a wild, insane Dance of Life," Munch later wrote. "A blood-red sun stood in the sky; the cross was atoned for. . . . Then the experienced Woman of the World came on the scene and I received my baptism by fire."

Munch made his first visit to Paris in 1885. He returned to Christiania and produced his first masterpiece, *The Sick Child,* inspired by the illness and death of his sister Sophie. Munch slathered on the paint and hacked into it with a palette knife to create what is arguably the first Expressionist picture, anticipating the better-known mature paintings of Van Gogh by a couple of years. A Christiania critic called it "incoherent daubs of paint," but Munch himself said "with *The Sick Child,* I opened new paths for myself—it

Piri Halasz, a former art critic, now a preceptor at Columbia University, has written on Max Ernst, Alexander Calder and John Quinn for SMITHSONIAN.

At Aasgaardstrand in 1889, Munch painted his comely sister Laura. She also lived an anguished life.

Munch-Museet, Oslo

Confronting viewer straight on, in person and in his paintings, Munch was in his Ekely studio in 1938.

became a breakthrough." He was to repeat the theme many times.

For three years, 1889, '90 and '91, Munch obtained scholarships to study in France, but he returned to Norway in the summers, renting a summer home at Aasgaardstrand on the Oslofjord. The paintings from this period show him experimenting with the latest styles of Paris, but increasingly expressing his own ideas. The subjective, almost religious mood of some of these works is similar to that of paintings being done by Gauguin at the time, and already coming to be known as Symbolism.

Munch held his first one-man exhibition in Christiania in 1892. He received an invitation to bring the show to the Association of Berlin Artists, in a city newly prosperous. The Munch show opened on November 5, advertised as "Ibsenlike" in mood, invoking the name of Munch's older and more famous countryman. The result was an uproar. The association's shocked members quickly voted to close the exhibit after a week.

Still, the artist had become a cause célèbre. He took a studio in Berlin and spent a stimulating couple of seasons with the local intelligentsia. Their meeting place was a wine cellar christened "At the Black Piglet" (from the odd shape of an old, soot-covered wine sack hung over the entrance) by August Strindberg. The misogynistic Swedish playwright was the most vocal member of a group that also included a Polish medical student, political agitator, novelist and Satanist named Stanislaw Przybyszewski. There were others, too, such as a German engineering student, Julius Meier-Graefe, who later wrote the first history of modern art, and Richard Dehmel, the German poet.

The ideas of Nietzsche and Darwin, with their attacks on conventional morality and religion, were again much in the air, and it seems likely that a major subject of the discussions in the wine cellar was the psychology and pathology of human passions. All this played into Munch's preoccupations with the attraction between the sexes (although death and despair remained a constant with him; to this period belongs *Death in the Sick Room*, another treatment of Sophie's final illness).

Munch himself provided the catalyst to the Black Piglet, in the person of Dagny Juell, a young Norwegian music student whom he had known and possibly courted in Christiania's Bohemia. Munch brought her to the wine cellar, and instantly Strindberg, Dehmel, Przybyszewski, Meier-Graefe and several others also fell in love with her.

Skillfully, Dagny (whom they called Ducha, which means soul) played off the various men against each other, but Przybyszewski was the one who finally snared her. After the marriage, Munch, Meier-Graefe and others continued to visit the Przybyszewski apartment, drinking schnapps and paying court to Dagny while her husband pounded Chopin through the night on an old upright piano. Friends they were, but also enemies, caught in a web of jealousy.

In this superheated atmosphere Munch found it difficult to get much work done, although early on he had conceived of a unified cycle of paintings with a theme of love and death. Returning to Norway in the summer of 1893, he completed at least half of the canvases that were exhibited under the title "Love" in 1895. One picture was *The Scream* (p. 95), Munch's most famous. Munch had achieved his mature style, in which broad areas of flat color were interwoven with sinuous lines and shapes that embodied the burgeoning idiom of Art Nouveau.

Financially, however, the artist was hard pressed. He turned to graphics in hopes of a more modest but steadier income. Opportunities for printmakers were better in Paris; for the next few years, Munch located there. He was concerned with his same themes, but

Private Collection

National Gallery of Art, Washington (impressions II-VI)

Demonstrating Munch's obsession with theme, symbol and atmosphere are the six rare wood-block impressions running across these pages, of his print, *Two Women on the Shore,*

Munch-Museet, Oslo

Two times in the life of a woman, a continuing theme of Munch's symbolism, are powerfully presented in this painting of 1894, *Red and White*. Innocence is white and simple, experience red and dark-eyed.

accomplished over a 30-year period beginning in 1896. The young woman in white and the old woman in black may be taken to be the same person, as treated inexorably by life.

found woodcuts and lithographs ideal for achieving greater linear clarity and more stark and terrifying contrasts of light and shadow.

In Paris, Munch was accepted and admired by Frederick Delius, the English composer, and Stéphane Mallarmé, the Symbolist poet. But he continued to summer in Aasgaardstrand, a popular seaside resort of the time, and the years were complicated by a third relationship to a Christiania Bohemian named Tulla Larsen. She wanted to marry Munch, but he would have none of it.

Tulla fascinated him, though, and seems to have served as the principal model for one of his major paintings of this period, *The Dance of Life*. Though Munch could be cynical about the female of the species, sometimes presenting her as a vampire, sucking men's blood, there is sympathy for her, too, in *The Dance of Life*—based partly on the knowledge that both of Munch's surviving sisters had undergone unhappy love affairs.

The end of the relationship with Tulla came in 1902, when Munch, evidently in an attempt to win sympathy from her, shot himself in the hand. She let him go to the hospital alone, to get the bullet removed. When he came out, he found she had ditched him for a younger artist.

In 1908 Munch suffered a nervous breakdown, spending six to eight months in a Danish sanatorium. Afterward, he was a changed man. He had given up cigarettes and the liquor that had sustained him over the years. Finally, he settled permanently in Norway. Fame and funds had come to him by then. The younger painters of Germany recognized Munch as a chief progenitor of their style.

Munch produced a prodigious amount of work until his death in 1944, and in 1963 a museum devoted entirely to his paintings opened in Oslo. His later work lacks the tense involvement in the ideas of the day that characterized the earlier pictures, but many fine effects resulted. From these later years come landscapes of a dignity that recall Cézanne, and placid studies of models that reveal a sensuous command of subject and moment. Most notable are a series of self-portraits.

"I shouldn't like to be without suffering," Munch once remarked. "How much of my art I owe to suffering!" It took an artist of his sensitivity to make a virtue of that necessity, but the man must also have realized how well the experience of suffering teaches one to appreciate serenity.

Munch-Museet, Oslo

Even in delicate tones of watercolor, Munch evoked the power of individual personality, as in *Blue Nude.*

In a world of increasing anxiety, Munch's *The Scream* became, for many, almost an insignia of our times.

Nasjonalgalleriet, Oslo

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dazzling, yes, but as an animal minimal

For a mixture of beauty and success, turn page

By Shirley A. Pomponi

The not so lowly sponge

Looking like a glove, as do sponges at the right, *Niphates erecta* needs only small area for attachment.

Sponges are just barely animals, such a borderline case that until the 19th century they were called zoophytes, the animal-plants. They are among the most primitive forms of multicellular animal life: they have no muscles or nerves, no mouth or digestive cavity, nothing in the way of organs. But they have been around a long time and must be doing something right. More than 5,000 species inhabit this planet, living in fresh water and throughout the sea down to depths of more than 25,000 feet.

Often strikingly beautiful, sponges grow in a kaleidoscope of colors, sizes and shapes. Used for thousands of years as, well, sponges, they are now seen as an important source of pharmacological compounds, including one being tested against certain cancers.

Their water-holding capabilities have made the word sponge a part of our language. And the pores that give the sponge phylum its name—*Porifera*, meaning pore bearer—are the key to their existence.

Sponges consist of several types of cells, loosely organized into external and internal areas of the body. What distinguishes sponges from every other group of animals are chambers formed by groups of choanocytes, or collar cells. This type of cell is named for its collar of minute cellular projections, in the center of which is a single, long, whiplike flagellum. The flagella beat actively to direct water through the canals that extend throughout the body of the sponge.

The water, of course, brings with it oxygen and food. The choanocytes ingest bacteria, small algae and organic debris and then pass them on in food bags, or vacuoles, to cells called amoebocytes. These are highly motile cells that digest the food and pass the nutrients on to other cells. All the cells seem able to exchange oxygen and carbon dioxide.

A sponge four inches tall and less than half an inch across has more than two million choanocyte chambers and can pump more than 30 gallons of water through its canals each day. A living sponge is simply a very efficient filtering machine.

Most sponges are hermaphroditic, producing both egg and sperm cells, although a few species have separate sexes. Egg and sperm cells are released at different times, to ensure cross-fertilization. In some species the release is highly visible: sperm cells in clouds of milky fluid and mucuslike sheets of egg cells flow from the sponge (p. 101).

When a sperm cell enters another sponge through its canal system, it is engulfed by a choanocyte and transported to the egg. Fertilization occurs when the sperm-bearing choanocyte fuses with an egg. In some species the fertilized eggs are released directly into the water, but in most the eggs are retained until they develop into larvae. These are then released and swim around for a few hours to a few days before settling down on some suitable surface to begin their own lives as sponges.

Sponges can also reproduce asexually by simply budding off new individuals. And some species, threatened by temperature extremes, dryness, pollution and food scarcity, find an alternate solution by releasing gemmules, cystlike masses of cells. The gemmules them-

Dr. Pomponi, a research associate at the University of Miami's Rosenstiel School of Marine and Atmospheric Science, specializes in boring sponges.

The openings in this unidentified Caribbean sponge are oscules through which filtered water is expelled.

Aiolochroia crassa comes in several colors, but turns purple black when collected, killed, exposed to air.

selves are resistant to harsh environmental conditions; the cells remain encysted until conditions become favorable for growing into new sponges. Gemmules are common among freshwater sponges, but are evident in some saltwater species as well.

Perhaps the most remarkable thing about sponges is their ability to regenerate after being pulled apart. In a classic experiment, a sponge is forced through layers of gauze or heavy silk into a bowl of seawater. The cells settle on the bottom of the bowl and within hours or days reaggregate into a tiny but functional sponge.

Sponge skeletons are formed either by elastic collagen fibers or tiny elements called spicules, or both. Scientists classify sponges primarily by their spicules which in most cases are either siliceous (glassy) or calcareous (limy).

As a group, sponges first appeared about 550 million years ago. They probably evolved from single-celled protozoans, and have changed very little since. As individuals they have life-spans from just a few years to 20 years or more. One recently discovered class, the sclerosponges, are thought to live several hundred years.

By far the most beautiful and diverse species of sponges are found on coral reefs. They range in color from the deepest reds and brightest yellows to iridescent pinks, blues and purples. Some of the reddish tones come from carotenoid pigments in the various cells. Sponges also contain pigments such as chlorophyll and melanin, which come from microscopic algae living inside the sponge or from algal cells the sponge has ingested.

On coral reefs where competition for space is intense, sponges have evolved forms that allow them to occupy three different niches. The common and most visible sponges are the massive varieties which can be amorphous in shape, long and branching, tubular or vase-shaped. These sponges may require only a small surface area for attachment for successful growth.

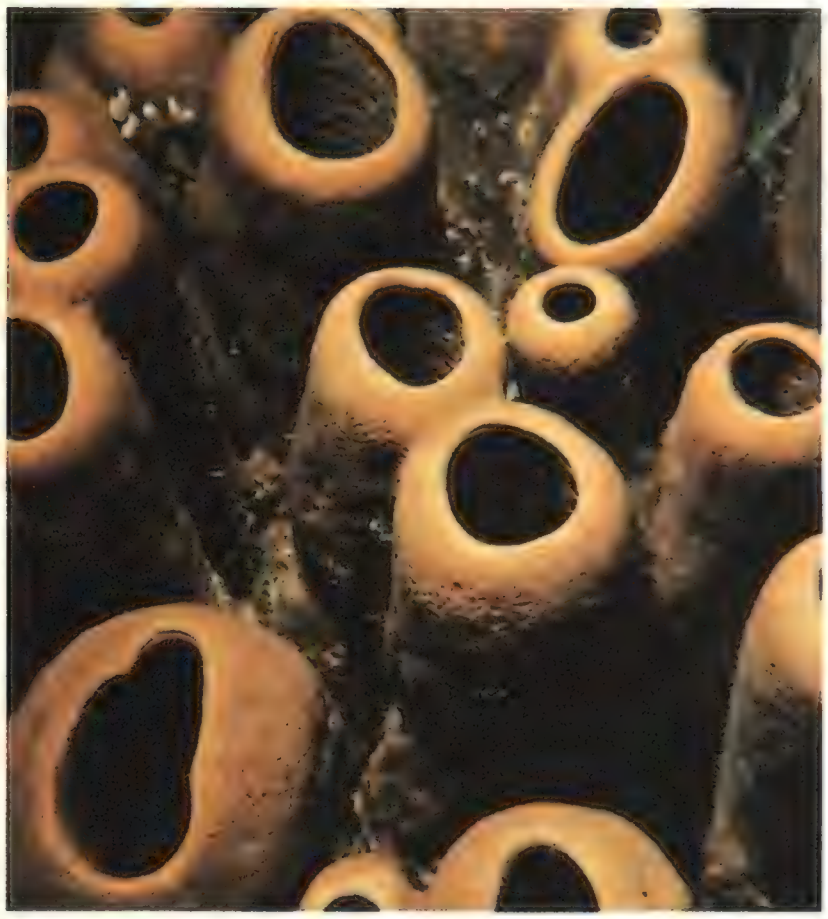
A second group forms thin encrustations on the undersides of corals and other hard substrates. Some, like the orange encrusting sponge, *Mycale laevis*, actually protect corals by preventing other organisms from settling and boring into the coral.

The third group of sponges themselves tunnel into the coral or other limestone substrates. They secrete an acid or an enzyme that removes microscopic chips of the substrate. The chips are carried through the loosely packed cells of the sponge body and out through the canals. Eventually the sponge fills numerous cavities and tunnels, weakening the coral skeletons and making them vulnerable to strong currents and storm waves.

Most of the body of the excavating sponge is inside the substrate, showing only intake and outflow openings, often on chimneylike papillae (p. 100). The papillae of most boring sponges are so small that they are barely visible. However some species that excavate

Photographs by Peter D. Capen

The large openings (papillae) are a colorful clue that an excavating sponge lives inside this star coral.



This cluster growing in the Caribbean is a species of *Agelas,* sometimes called pottery sponges.

extensive tunnels need so many papillae that they form an encrustation over the reef.

Sponges in turn provide shelter to other reef dwellers. The loggerhead variety houses thousands of shrimps in its canals; brittlestars are often seen draped across tubular and branching sponges; and crabs, fish and even sea urchins hide in the bottom of vase-shaped sponges (opposite, upper right).

Not all sponges lead a stationary life. Larvae of the sponge *Suberites domuncula* may settle on a snail shell occupied by a hermit crab. As the sponge grows, it completely covers the shell. Eventually the shell dissolves and the hermit crab lives within the cavity in the sponge.

Then there's the crab *Dromia vulgaris,* which has a broad, hairy shell and a last pair of legs that bend upward. After breaking off a piece of sponge with its claws, the crab uses these legs to hold the fragment against its hairy back. The sponge grows and soon covers the shell like a cap, camouflaging the crab. In both cases the crabs are protected from predators because most fish do not eat sponges, and the sponge is

on reef. Papilla of boring sponge is visible, center.

This vase sponge is shelter for brittlestar, arrow crab and a sea urchin whose spines are in right opening.

moved from place to place by the crab, enabling it to feed in different places.

An interesting Japanese custom stems from the relationship between the shrimp *Spongicola* ("sponge dweller") and the glass sponge *Euplectella,* also known as Venus' flower basket. The shrimp live in pairs and enter the sponge while still small. Eventually they grow too large to leave the sponge. They survive because, like the sponge, they filter food from the water. The sponge, with the entrapped shrimp, is given by the Japanese as a wedding present, a symbol of lifelong faithfulness.

Sponges have very few enemies. In polar and temperate seas, sea stars and nudibranchs are the major predators. In the tropics, certain fishes and sea urchins nibble or scrape off pieces of sponge, and sea turtles are known to take some sizable bites. But the needlelike spicules, as well as poisonous compounds in some sponges, deter many would-be attackers.

Appealing in their own right, sponges offer the added virtue of usefulness. Even with synthetic sponges widely available, a market for natural sponges per-

Mucuslike sheets contain masses of egg cells. Sponges have a variety of reproductive strategies.

sists. They hold more water without dripping, are easier to clean and last longer, even under heavy use. Painters, window washers and ceramic workers frequently prefer the real thing. And now, after centuries in the bathtub and decades on the Saturday morning driveway, sponges are finding their way into the laboratories of pharmacologists and cell biologists. As do so many marine invertebrates that have limited defenses in the usual sense (they are capable of neither fight nor flight), sponges produce some extremely powerful chemical compounds, toxic and otherwise, that hold great promise as future drugs for the treatment of human disorders.

At the same time, sponges are getting more and more attention from those trying to advance our understanding of life at the cellular level. Knowledge of how sponge cells move about, recognize each other and link up could have enormous implications for the future study of life further up the evolutionary scale, including our own.

We may learn a lot from this "primitive" animal. But even if we do isolate a marvelous drug or achieve a better grasp of how cells do what they do, we can hardly lose sight of the infinitely varying forms, the flamboyant colors, the intriguing adaptations of the sponges themselves.

Looking like so many urns, this strawberry sponge is now called *Thorecta horridus*. It produces large amounts of mucus, and the intricate matrix of spicules and fibers may help deter predators.

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By Dana Little

Twnhse, 12 rms—tiny people only

Designed for modern-day comfort, this Little House exemplifies a rising interest in an 'art form' called miniaturization

Queen Anne love seat adds elegance to foyer with classic bust, mural and parquet floor.

It's been 30 years since Mr. Blandings built that dream house, but many Americans continue to try their hand at it. Take the two in Illinois who just finished an elegant, four-story, 12-room town house. They insisted on large, high-ceilinged rooms and filled them with a mixture of period furniture and modern and antique works of art, accessories and fabrics. They put in a brass cage elevator connecting the entrance-hall foyer and the upstairs drawing room. They have a walnut-paneled library with a contemporary African wildlife motif, a bar and one of the dream house's five fireplaces. And on the third floor is the master bedroom and bath and a French boudoir and dressing room. Guests have a room or two on the top floor.

It's a welcoming house with a feeling of spaciousness and warmth that makes you want to move right in. But you can't unless you're around six inches tall. What measures one foot in the real world measures an inch here. From the top of the gambrel roof to the polished floors of the formal Chinese-red dining room and modern kitchen, this house is 45½ inches high. It is 33 inches wide and 21 inches deep. Its rooms measure 16 by 18 inches and have 10-inch-tall ceilings.

Samuel Johnson once wrote that "there is nothing too little for so little a creature as man." Whatever inspired this Decatur, Illinois, house, its owners, designers and furnishers, Jack and Naida Little, stumbled onto a collecting hobby probably next only to stamps and coins in popularity. The world of miniatures is a fast-growing interest in the United States.

Parisian-style brass cage elevator connects foyer with upstairs drawing room. It works.

Photographs by Lee Balterman

The house where small is beautiful

Library has an African motif and walnut paneling. A Christmas tree greets—and an open box of chocolates tempts—visitors.

Until recently, this Lilliputian pastime tended to be cultivated by people with time and money on their hands. But today's revived absorption with antiques and crafts, along with the small-is-beautiful philosophy, not to mention a boom in nostalgia, has fanned the minirenaissance—perhaps explosion—of the 1970s.

Creating rooms on a 1/12-inch scale, in which interior design, decorative arts and architectural detail faithfully interplay to capture a way of life, has become a prime impetus for today's collecting mania. This infinitely exacting hobby is widely regarded by its dedicated, hard-core practitioners as an important and, until lately, a relatively untapped art form.

In the past, Americans tended to furnish miniature houses in the fashions and styles of their own eras. Most of today's collectors prefer to re-create Victorian and Early American periods. The Littles, on the other hand, simply wanted a present-day house with its familiar, lived-in look. "We wanted the eclectic furnishings of this decade, not a museum or period piece," said Naida Little, the design and decorating talent behind it all. She and her husband Jack, a physician, started on the venture in August 1975.

When the Littles first approached a local fireman about doing the preliminary carpentry, he was taken aback. But he decided to play along. Soon after he started building the house, his father, a retired meatcutter, was hand-carving a walnut staircase for the library. Such was the genesis of what has (inevitably) been dubbed "The Little House on the Prairie."

The next step was to write for catalogs on miniatures (there are now well over 100 to choose from) and then scout around for first-rate custom artists. The 44-page catalog of the Chestnut Hill Studio of South Carolina was most inspirational. Craftsmen there have been making fine-quality reproductions at reasonable prices since 1947. In the Little House they're respon-

Enviable dining room boasts Chinese decor, Duncan Phyfe chairs and an intimate table at rear. Grillwork doors open into a conservatory.

sible for, among other pieces, the Duncan Phyfe chairs in the dining room, the red leather chair and fireplace in the master bedroom and the library books.

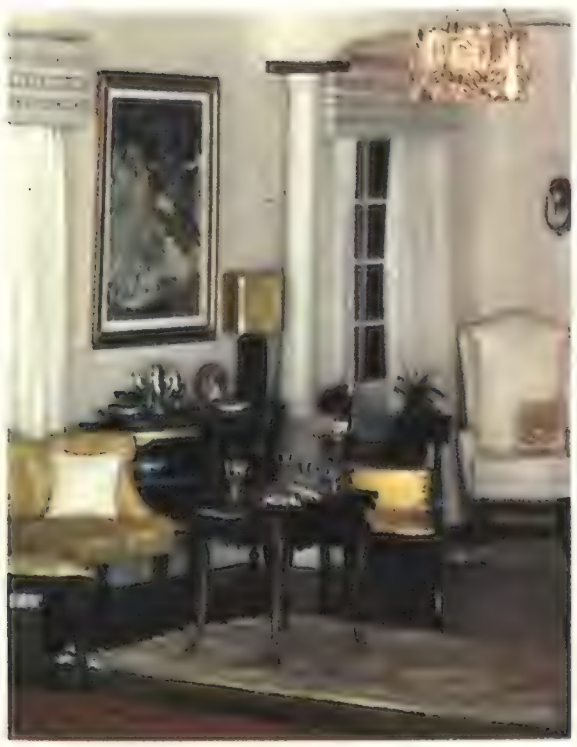
As catalogs were studied and a prodigious correspondence with "microphiles" got under way, the Littles discovered a coast-to-coast fraternity of crafts people and a widespread network of communication. "Everybody in this business likes everybody," said Jack Little. "Everybody is intrigued by his own cleverness or ingenuity." A modest inquiry in response to an advertisement in, say, the *Doll House & Miniature News* or the *Nutshell News* frequently evoked a helpful personal reply, sometimes sharing a trade secret or two. Unsolicited letters would arrive, saying, in effect, "So-and-So told me you are looking for a modern coffee table. Can't help you with that, but try Such-and-Such in Iowa. . . ."

The Littles originally envisioned a dummy elevator in the first-floor foyer in lieu of a space-consuming stairway. They wrote to The Village Smithy, as the operation of Al Atkins, a miniatures blacksmith in New York, is known. Could Al make such a thing?

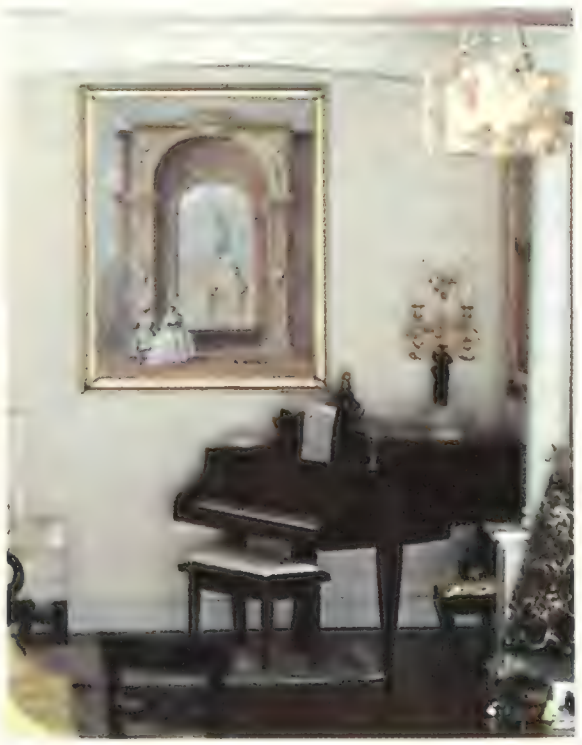
Atkins, whose motto is "never trust anyone over 6½ inches tall" and who publishes the most amusing catalog in the trade, replied that it would be "much more fun" if the elevator worked. He didn't fancy the assignment himself, but his advice was heeded to a tee.

Atkins' wrought-iron chairs in the morning room fit

Associate Editor Dana Little is expert on Little House. Piano (below) belonged to her.



Chandelier in upstairs drawing room was made from cut-glass salt dish. Author's picture is in round frame.



Gold candelabra in drawing room was designed by Eugene Kupjack, a prominent American miniaturist.

Wrought-iron furniture and petit-point rug in morning room off modern kitchen were custom-made.

Master bedroom has hand-painted Delft tiles, Chippendale furniture that came from Hong Kong.

French boudoir furniture is sturdy, albeit fashioned out of wire armatures, papier-mâché and lacquer.

and slide under his matching glass-top table without a hitch. The true miniaturist knows that only such careful planning can transform a very small space into what appears to be a full-scale interior.

With the exterior of their house finished and orders for furniture and accessories placed across the country, the Littles' next good fortune was to find, right in their own hometown, a pair of master miniaturists who agreed to help carry out their design specifications. Miniaturists are often husband-and-wife teams; Jim and Betty Weilepp, though strictly hobbyists, do work that ranks with that of leading miniature artists.

Jim laid parquet floors, fashioned baths and mirrored walls, opened up shelves for tiny towels and linens, installed the elevator, put in the electrical wiring, paneled the library, reupholstered old furniture (from a childhood "dollhouse") and made some new. Betty tackled paintings, frames, chandeliers, the classic mural in the foyer, the tole table and big painting in the drawing room.

The elevator itself, the glass-enclosed, plant-filled solarium at the rear of the dining room and the Jacobean table in the foyer with its hand-carved, spread-eagle uprights are the work of Clarence Goodbreak, a retired cabinetmaker in Decatur. A family friend, Marion Miller, turned out the petit-point rugs.

French court furniture, a hard-to-find miniatures commodity, is the specialty of Sara Elizabeth Heritage, a retired design instructor in Arizona. She used wire armatures, papier-mâché, fabric and lacquer (30 coats!) to make the boudoir and dressing room pieces. This "recipe," once used for making real furniture in the 18th and 19th centuries, proved to be a dud, but it is ideal for 20th-century miniatures.

Miniatures spring from such human skills as these. They can be found at mobbed events called mini-shows almost any day or weekend of the year. It was at such a show in Philadelphia that the Chippendale furniture now in the master bedroom was first located. The order was placed through a Georgia dealer and arrived some 18 months later—from Hong Kong.

That show also produced the Queen Anne settee now in the foyer. It's the work of Virginia Merrill, a widely known miniatures authority from New Jersey.

Shops devoted exclusively to miniatures (names like Mini-Splendored Things, etc., mean you're on the right track) are springing up everywhere. The gift shop at Flora Gill Jacobs' Dolls' House & Toy Museum in Washington, D.C., boasts one of the best mini-inventories in the nation. It's a must for the serious collector.

And collectors come in all sizes, shapes and ages. Many, like Jack Little, are doctors or lawyers. A few years ago, a portly, well-dressed gentleman ducked into a cluttered New Orleans treasure trove of miniaturia. Though barely able to navigate the narrow aisles, the visitor leisurely examined nearly every little object, then selected a tiny volume of love sonnets and a minuscule china cake plate.

Only as he finally departed did the jittery proprietor recognize the bull in her china shop. She shouldn't have been surprised. World problems, even for Henry Kissinger, seem to diminish as the scale goes down.

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Author is flanked by husband and teacher who seem to resemble each other (p. 114).

By Peggy Thomson

Ruth Hill became Indian to write epic of the Sioux

Her forthcoming novel, Hanta Yo, *took 30 years of agonizing education in the thought processes of Plains people*

A blockbuster novel about a tribe of Plains Indians is to be published by Doubleday early in February, with expectation of honors, a television airing and acclaim. It is called *Hanta Yo,* and it tells of a small band of Teton Sioux and how it existed and kept itself aloof from white influence between 1769 and 1834.

The author, Ruth Beebe Hill, is not Indian but white. She tells a story that is as true as an understanding of the ancient language and history can make it, for it is nowhere recorded. Ruth Hill put 30 years into the undertaking, the last 14 of them with the help of a bilingual Indian. She was so intent on making her book not only accurate but a reflection of what she calls the Indian "altitude of mind" that she translated her words into archaic Dakotah and then back into the English of the 1806 Webster's dictionary.

Ruth Hill's editor is Lisa Drew. She expects *Hanta Yo* to become a classic. She had doubts until she began reading. Drew had been editor of Alex Haley's *Roots* and has since beaten off numerous manuscripts purporting to be the *Roots* of other ethnic minorities, from Lithuanians to Appalachian highlanders. Here

Color photographs by Robert W. Kelley

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came a Teton Sioux *Roots* and Lisa Drew groaned. The author was unknown. Far from being an Indian, she was a *Mayflower* descendant; she'd only written one other book—*Conquering Your Allergy,* of all things—and she did not submit the customary outline and sample chapters. Instead, her agent explained that because the work is Indian in structure and style, it would have to be experienced as a totality—all 1,800 typed pages of it.

Lisa Drew remembers saying, "Hey, look! I'm a busy woman!" But in the end she found that she could cut only 100 of those manuscript pages—no more.

"Nobody else," says author Hill from her island home in Puget Sound, "ever told the story from the inside, using the ancient Sioux language to develop the Indians' point of view. Caucasian and Indian are diametrically opposed. Di-a-metrically." She is as decisive and tough-speaking as she looks fragile and refined. "There had to be just what there was—Chunksa Yuha and Ruth Hill, diametrically opposed and remote."

Chunksa Yuha, Santee Sioux, born 1905, raised in the Dakotah language, one of eight boys deliberately withheld from white schooling, taught by tribal grandfathers the ancient songs and ceremonies suppressed for 200 years. Chunksa Yuha, university trained, a composer as well as recorder of Indian music, "was the best of the Indian stock left to work with me."

Mrs. Hill, who grew up in Cleveland Heights, Ohio, has made friends with scientists, authors and film directors. She studied the Indian through years of 20-hour days, covering 90,000 miles, meeting 1,000 Indians, especially family elders.

"I'm no part of a mystique" she says. "At times, I said: 'Chunksa, I don't understand one thing you're trying to say. If you expect me to suspend reason, get the hell out!' The Indian is no stoic, but he has no release, except through song. Chunksa sang, alone and often. He sang away his pain. And he vomited—a lot. You see . . . my demands could be cruel."

"And I," Yuha breaks in smoothly, "I was contending with an intellect—off-balance, overeducated." He's an even-voiced gentleman, paunchy, given to cowboy hats, rimless glasses, a fondness for corny jokes. "What the white man calls

The author, who has written often for SMITHSONIAN, *spent a number of days with Ruth Hill at her Puget Sound home.*

Ruth Hill wryly remembers herself as "pert" at start of her huge project.

subconscious is the Indian's superior consciousness. With us imagination is elevated. We don't say: 'It's *just* your imagination.' A child isn't chastised for daydreaming. You relax the intellect and the message comes through."

Hill adds, "I remember the moment when all at once, I understood. You put your hand this far and the spiritual world is here. All you have to do is command: 'Grandfather, hear me!' "

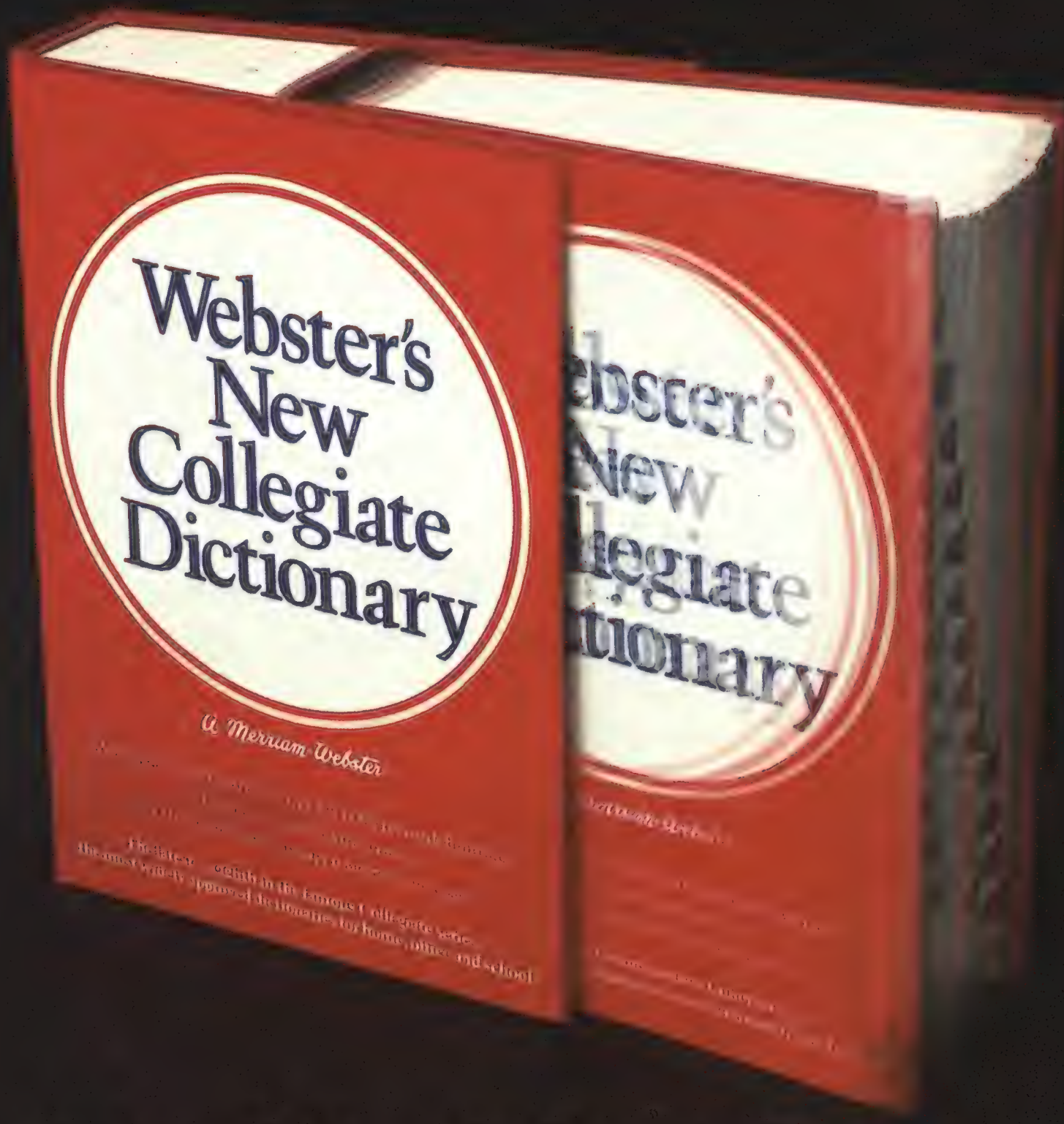
The book required not four years of collaboration, as they had projected, but 14. "These years we were never apart. Yes, to sleep, but that was three, four hours." Yuha became a member of the Hill family living with the author and her husband, a courtly Virginian, Borroughs Reid (Buzzy) Hill, receiving bed, board, laundry, cigarettes. When the Hills moved to Friday Harbor, Washington, on Dr. Hill's retirement from medical research eight years ago, three separate cabins were built on the wooded acreage—one for each of them—plus a large one-room lodge for shared evenings. The men speak of affection for each other. They never quarrel.

Ruth Hill intended the book to undo the damage of early missionaries and explorers, and the damage of Hollywood, "where actors mouth 24 Indian words."

"Nineteen," Chunksa corrects her.

"I was counting the ughs."

clone



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Borroughs (Buzzy) Hill, retired biochemist, accepts book as a "child."

Author Hill considers *Hanta Yo* not really a novel and not a documentary either. The names and the deeds of the four heroes are fictitious, but their tribe existed and "everything really happened." She calls it documented fiction.

Ruth Hill has wanted to write the book since she was nine. In the Thanksgiving table talk it was not so much her Mayflower Compact ancestor who interested her as Squanto. She teased her parents to be taken to see Indians. "Even then, I felt no pity. I saw beyond the poverty, the car bodies, the scattered trash. I described the Indians I saw as proud-walking people. My father said, 'Yeah, what do they have to be proud about?' According to him, I said: 'I'll find out.' "

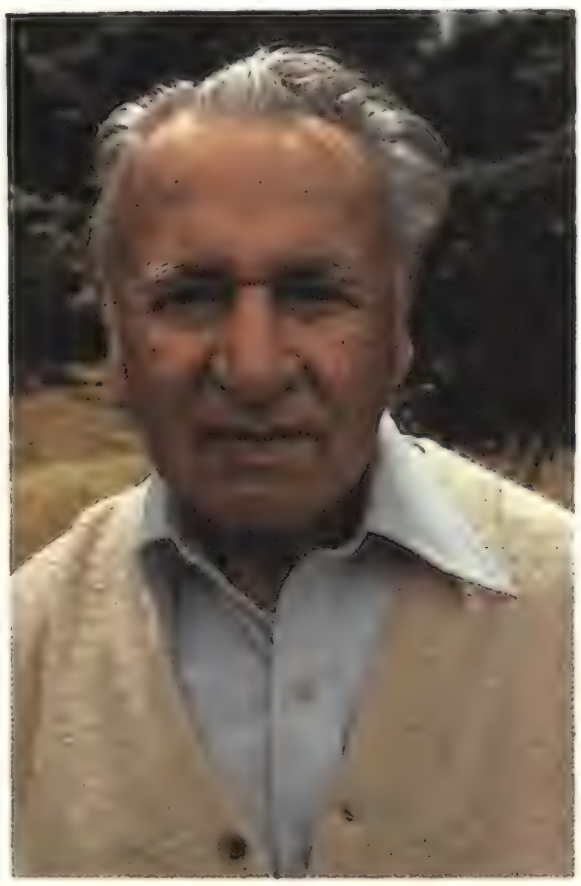
At Western Reserve University it was geology she wanted—not how to write, but how to place the Indian on Earth and in time. As a bride in Denver and running a bridal business, she became close to Mari Sandoz, who was then writing *Crazy Horse*.

Novelist Ayn Rand, her most influencing friend, she discovered in 1944 when a classmate told her that Dominique, heroine of *The Fountainhead*—gifted, driven, brutally direct—surely was based on Ruth Hill. "I went straight to the library to read the book. I marveled that someone could have written my every thought." She read the book 17 times, began a side-career of dramatic presentations which, along with ghostwriting, supported her.

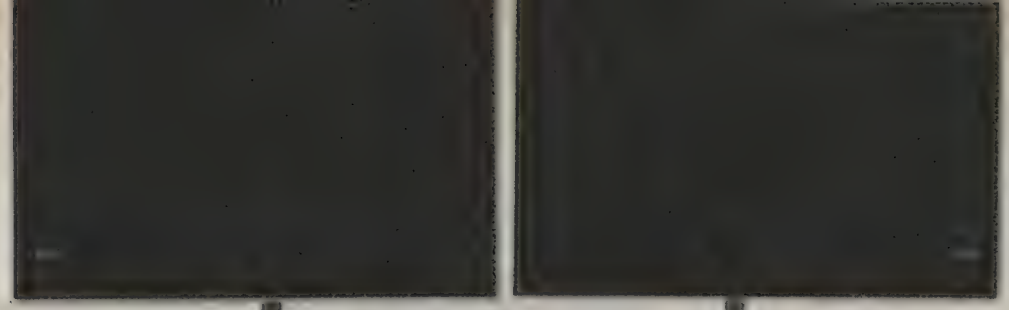
"The day I began my book," says Ruth Hill, "I gave up car, keys, license (if you have a car, you're out in it). I kept no money in the house. The mailman with 3 cents overdue was told to wait till my husband came home. After three years—living at the UCLA library—my typed notes covered 1,000 square feet of living room floor space."

Summers she spent in the field, acquainting herself with the badger, who "digs in with foot and mouth," studying the buffalo at Moiese and at the site of an ancient buffalo jump (Montana) with special attention to ribs ("I wanted to know the distance between them when an arrow penetrated"). In Alaska, with Adolph Murie on a census of grizzlies, rattling a stone in an oil can for protection, reminding herself to run downhill, not up, for escape, she tracked within a quarter-mile the great humpback bear which the Indians regard as their common ancestor.

To know the beaver well, she rented films, made her own, entered a beaver lodge—carefully, without destroying it—to examine the sleeping ledge. She listened for the cry of the young, which sounds



Chunksa Yuha, Santee Sioux, supervised the Indianization of Ruth Hill.



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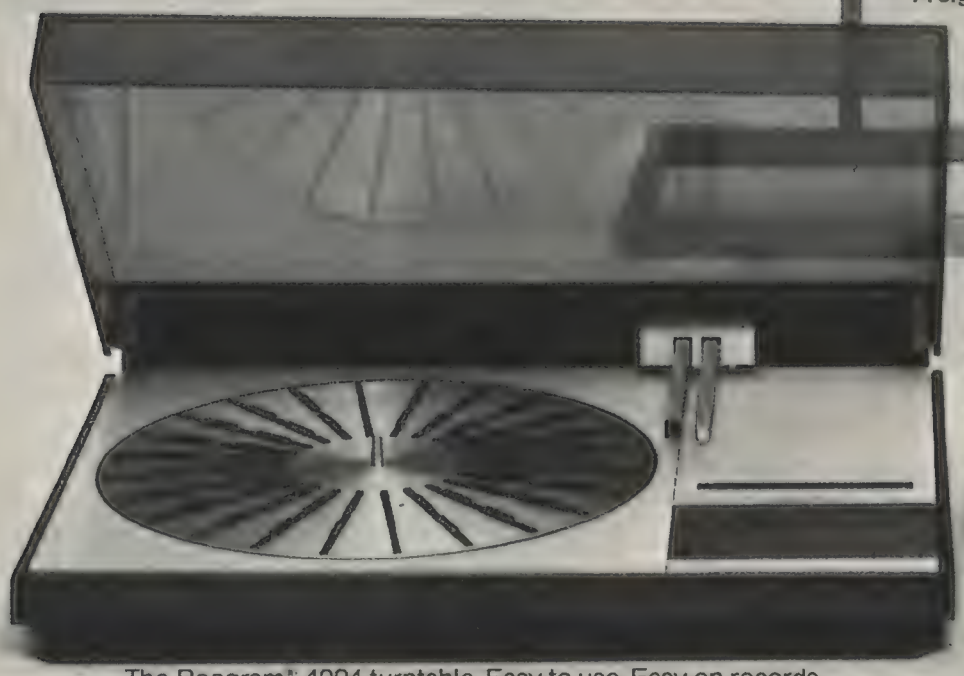

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human, learned to recognize the beaver by its smell, to cook its tail ("delicious, and important for the book where a Crow woman prepares it for a Sioux man"). It delighted her to find that the skunk rolls in mud to shed its own offending stench.

Hill keeps on hand a selection of moccasins—for sorting out the foot patterns by tribe. She has the skulls and furs for every animal in her book. One sack holds the feathers she gathered for the 44 birds in her book, including the little old grandmother who scolds (crow), eight types of hoohoos (owls), and the kind of wing-flapper (eagle) wingbone which is blown nonstop during a three-day sungazing.

Her porcupine quills please her. "The Indian sorts through them for texture and size—from the finest belly quills to the stiffest—as we do through a packet of needles." She picks hers up from road kills. "I'm not interested in beadwork, most of which had to come in with the white man."

She is saving for use in a *Hanta Yo* movie her sack of elk droppings ("I watched the elk drop them"), her moose droppings and a pie-sized buffalo chip (damaged in the move to Friday Harbor). "My friend, one of the richest women in California, said 'O, Ruthie, I can't wait to see what you brought home!' When I opened the sack. . . ."

For months-long periods the author lived on reservations, in tent or tepee. She spent weeks in car travel with young Indians, sharing their humiliation at having to be gone from a motel by 7 A.M., eating only uncooked tripe ("which I happen to like"). She took no photographs on the reservations, made no notes. "If you go with camera and notebook, you might as well not go. You can count on being turned over—like inquiring anthropologists—to the biggest liar around. You want a legend? You'll get a legend. And it's crap!" She rarely asks a question. "Seeing a baby bound to a cradle board, I'd say, 'He looks comfortable,' and the mother would say, 'When I bathe him he reaches out to go back to the board.' You just don't say, 'Hey, tell me about your grandfather.' Indians don't know what you mean. All men of grandfather age are their grandfathers."

Along the way she trained her senses "as the Indians do. It's not something they have. We once played a game with 30 Indians to see who could walk most silently through the woods. My husband won." As an exercise, she experienced a five-day starve—without eating, drinking, going to the bathroom. "It wasn't hard. People attach too much importance to that sort of thing." Echoes of her experience appear throughout, glimpses too, of herself in the spirited women.

Author wears an elk hide, a gift from old Chippewa (Ojibwa) whom she met.

And a marvelous sensitivity in human relationships. The warrior Ahbleza, testing himself, throws off all his possessions, finally his loin cover, to "learn the meaning of pure." And at this time the woman Heyatawin follows him from the camp: "He had overlooked such a moment; going out from camp he had put aside memory of this woman whom he had intended to make his wife in the same way that he had put aside everything he possessed.

"But why will she come? She knows he has nothing to offer her. He closed his ears to her hurrying feet, to the flapping of her gown.

"Then suddenly she stood in front of him, looking into his face, her eyes telling that she sees nothing to arouse her sympathy. Instead, she yields her person into his hands; she presents herself to him, a possession to replace all that he throws away.

"Ahbleza reached out, then withdrew

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his hand before he touched her. The urge to become something to this woman almost surpassed his enduring. He turned; he moved away, going in any direction.

"She followed. And so he paused, letting her reach him. 'You see me, my sister. I am not as when I. . . . See my humbleness. See me as one who has-not.'

" 'I never will see you humble, my heart,' she answered. But the man had walked on, choosing not to hear. . . ."

In a moment he turns again, again protesting his humility. But then, "her unwavering look told him that she knew greatness when she saw greatness; she will not look for someone to identify this strength for her.

"And now, his eyes strangely filling, Ahbleza faced away from her, hiding his tears. 'I go out in nakedness to discover the meaning of wholeness . . . perhaps to prove . . .'

" 'Prove? You exist as the proof. My true one, thank you for lending me your presence, for permitting me this view of yourself. I see eyes that spill out not tears but a glistening spirit. I am woman and I know.' "

Ruth Hill had the story outline early on. One sentence from a history text provided her with her people. MINE she lettered in the margin where it said that a small band, wandering between the Black Hills and the Missouri, still maintained a camp by the river as late as 1865. Five lines in an anthropological paper gave her the basis for her "dreaming pair," her heroes—one a scout, Tonweya, one a warrior and peacemaker, Ahbleza —who share a vision linking them for life. The device for tying the lives of her two families into historical events was the winter count. (In her winter count, the arrival on the plains of Lewis and Clark is a minor occurrence, remembered by the Indian for the feast—of savory dog meat.) "I had all that," Hill recalls, "but something was lacking. I knew my trees, soils, waterways. But I knew it all without knowing the Indians' soul. Who the hell knows Indians through artifacts?" Hill was convinced it would be necessary to

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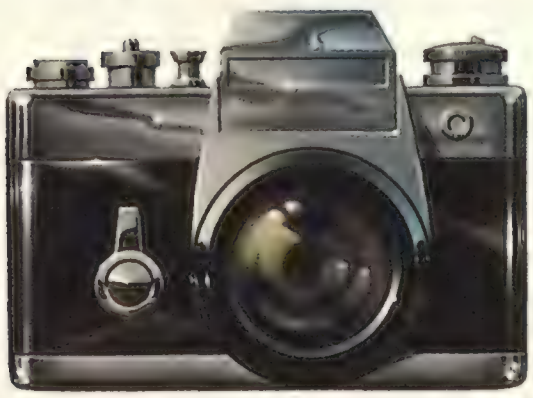

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learn the ancient language. But she was outraged by the teachers she tried. "I was still smarting from one translation for me of hail as frozen rain —a concept of modern physics—when Chunksa appeared at my door."

"The answer to your prayers," the Indian remarks.

"Before I even invited him in, I asked: what is the word for hail? He stood there and I repeated the question, sharply. He said he heard me the first time. If I meant hailstones the size of marbles, the word is *wasu,* seeds of snow. For sleet resembling birdshot and sounding on the tepee like *waheca,* I'd use that word. For hail intermixed with rain, *magazu.* I opened the door and said: 'Come in.' "

The two began on the language at once, putting their first five hours to the Indians' word for white man (which is neither white nor man) and working 53 hours through. The Indian agreed to return in three months, by which time Hill was to prove herself with work in Father Eugene Beuchel's Lakota Grammar.

"Chunksa never misled me. He was the one person who could give me the understanding and show me the words. Then I could use the dictionary. I had the story but it lacked substance. Chunksa put the *skan,* the spiritual vitality into it. His songs and ceremonials were true indicators for the premises guiding Indian life. The *hunka* ceremony (*hunka,* choice) in which a relative is chosen, it may be a brother, a second father. Never have my people exercised choice to this extent. The ceremony of the *winkte* (wants-to-be-woman). I knew there were gay Indians, from pre-Columbian times. I didn't

Indians call ammonite *wanisugna,* "life within the seed, seed within the shell."

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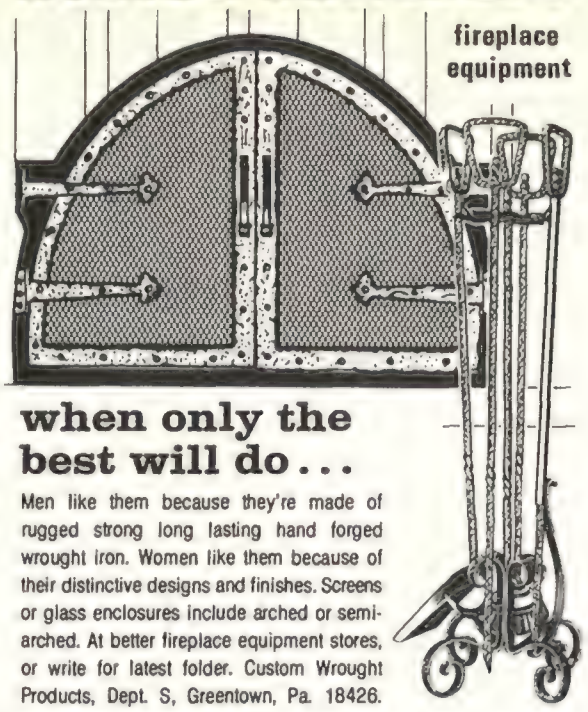

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When You Were Sweet Sixteen (The Ink Spots)
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The Last Time I Saw Paris (Johnny Desmond)
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I've Heard That Song Before (Harry James)
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Navy Fight Song (Glenn Miller Orch.)
Boogie Woogie (Tommy Dorsey Orch.)
To Each His Own (Ink Spots)
In The Modd (Glenn Miller Orch.)
Yankee Doodle Boy (Norman Brooks Orch.)
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Somewhere Over the Rainbow (Judy Garland)
Don't Fence Me In (Shep Fields Orch.)
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Heartaches (Ted Weems)
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SONGS (ARTIST)

Ghost of a Chance (Mel Torme)
When I Take My Sugar (Shep Fields Orch.)
Side by Side (Kate Smith)
Harbor Lights (Shep Fields Orch.)
Woodchoppers Ball (Woody Herman Band)
Swanee River (Tommy Dorsey Orch.)
Best Things in Life Are Free (Frank Sinatra)
Elmer's Tune (Lawrence Welk Orch.)
Cuddle Up A Little Closer (Ink Spots)
Flat Foot Floogie (Louie Armstrong)
Little Brown Jug (Glenn Miller Orch.)
That Old Devil Moon (Johnny Desmond)
Somebody's Taking My Place (Ted Weems)
Sophisticated Lady (Duke Ellington Orch.)
Wish You Were Here (Judy Garland)
Don't Squeeze Me (Lena Horne)

SOUNDSTAGE V

SONGS (ARTIST)

Velvet Moon (Harry James Orch.)
I Wonder Why (Bing Crosby/Judy Garland)
I Had the Craziest Dream (Harry James)
Ain't Misbehavin' (Fats Waller)
A Slow Boat to China (Dick Haymes)
I'll Be Around (Anita Ray)
Tuxedo Junction (Glenn Miller Orch.)
Song of India (Tommy Dorsey Orch.)
Blue Skies (The Sportsmen)
Habanera (Glenn Miller Orch.)
Perfidia (Billy Daniels)
If I Had You (Benny Goodman Orch.)
Red Sails in the Sunset (Sportsmen)
Swing Low (Tommy Dorsey Orch.)
People Will Say We're in Love (Kate Smith)
Rock-a-Bye Basie (Count Basie Orch.)

SOUNDSTAGE VI

SONG (ARTIST)

You Do Something to Me (Frank Sinatra)
Kalamazoo (Glenn Miller Orch.)
All of You (Johnny Desmond)
Me and My Shadow (Shep Fields Orch.)
Music Maestro Please (Tommy Dorsey Orch.)
All or Nothing at All (Billy Daniels)
Oh, Look at Me Now (Dick Haymes)
At Last (Glenn Miller Orch.)
Coffee Time (Les Brown Orch.)
But Not Like You (Benny Goodman Orch.)
Sunday Kind of Love (Anita Ray)
April in Portugal (Ted Heath Orch.)
I've Got the Sun in the Morning (Bing Crosby)
This Love of Mine (Tommy Dorsey Orch.)
Linger Awhile (Shep Fields Orch.)
The Man With a Horn (Harry James Orch.)

SOUNDSTAGE VII

SONG (ARTIST)

Say It Isn't So (Ted Weems)
Rock-a-Bye Your Baby (Judy Garland)
Chattanooga Choo Choo (Glenn Miller Orch.)
Maria Lena (Tommy Dorsey Orch.)
April in Paris (Count Basie Orch.)
The Poor People of Paris (Lawrence Welk)
Don't Worry 'Bout Me (Mel Torme)
Poor Butterfly (Benny Goodman Orch.)
Marie (Tommy Dorsey Orch.)
Isle of Capri (Shep Fields Orch.)
Sentimental Journey (Les Brown Orch.)
American Patrol (Glenn Miller Orch.)
Peanut Vendor (Stan Kenton Orch.)
Just You, Just Me (Frank Sinatra)
My Heart Stood Still (Dick Haymes)
Frenesi (Al Goodman Orch.)

SOUNDSTAGE VIII

SONGS (ARTIST)

Serenade in Blue (Glenn Miller Orch.)
When My Sugar Walks (The Sportsmen)
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This is one of many models studied by Ruth Hill to learn tepee construction.

know there was a ceremony. Truth, according to the Indians, is what happens. This happens. And a ceremony recognizes it."

Research for the vision-seeking ceremony, the stone dream, was the "shock of shocks" for Hill. For the "stones" which the Indians held as their specific "helpers" in the most important happening in an Indian's life ("when he chooses to meet himself") were the very stones with which as a student she started her intellectual quest—the ammonites she collected on geological field trips.

"I didn't try to find this. It found me. The Indians' name for ammonites is almost the perfect duplication of the geologists' definition. They were students of evolution. The spiraling stone they chose as sacred for their calling-the-buffalo and other ceremonies is the single mollusk fossil representing above all others the beginning of the life process. Its name translates as "life within the seed, seed within the shell."

In the end Ruth Hill typed four versions of her book—each one from 1,800 to 2,000 pages. Much of the time when sunlight filled her cabin she worked in dark glasses. An open wood fire was her only source of heat. The second version of the book was Dakotah. The third was again English. The fourth she modified to bring circumlocution within the limits of readers' tolerance.

"I was determined not to write pidgin, not to translate word for word, but to mold English to the Dakotah idiom and the Indian altitude of mind."

Here is her description of the instruction of an Indian boy by his grandfather: "And so man and boy moved on the summer-yellow grasses, a strict teacher, an apt pupil. Here, on this dry plain, the boy shall learn where earth hides her water when the streams empty and the rain stays away. For on a certain day Tunkaśila shall find those trails that lead to wallows and sinks and burn-outs and here show Peta the way to bring water up through sand until his drink comes clear. He will teach the boy ways to persuade the prickly-leaf to yield water, something the tall-ears, who seldom thirsts, had shown the man.

"Afterwards, he will make the grandson look up and see the dark cloud-sacs which hold the water in the sky. The boy shall learn that sky half-clear never spills rain and that the big shaggy clouds in a morning sky foretell flash-and-noise but that these same ones appearing after midday come as a decoration, something for the setting sun to paint red and yellow."

In a memo to her copy editors, Hill explained that she keeps to the simplest vocabulary, writes in phrases more than in words, uses few question marks and rarely a question, except rhetorical, few metaphors, no long descriptions. Indian thought doesn't come to abrupt endings. There are many commas, many "ands," more semicolons than periods. And many "and sos," used in the Indian way of citing effect, then cause. "Grass ripples and so wind blows" rather than as we would do it, the other way around.

The author uses the present tense and the future, sometimes past perfect in narrative ("the grandfathers had said so") but never the passive voice and never the subjunctive. "Try writing without should or would. You cannot have the concept, according to the Indian. If you should do something, you do it.

"The Indians have no word for we. 'We' puts you in with somebody. The Indian refers to I and you. It's never you and I. I is the sacred word. Think is conjugated properly only in the first person singular—I think. No Indian presumes to say what another thinks."

The reader, she predicts, won't be aware of the omissions, "but there are about 300 words I don't use which we're accustomed to use every other breath. Assume, believe, doubt, expect—neither the words nor the concepts appear in the book. You know or you don't know. The

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whole Indian world is based on that. There's no forgive, no guilt, no sorry. The white man had to teach the Indian to sin, teach him Satan, heaven, hell, the damn apple, all so he could be forgiven. The Indian had no word for sickness. I use hurting or 'dis-ease.' "

A "oneness with nature" flows through the book:

"The summer had grown old, the berries black-ripe, but this day smelled young and fresh. And everywhere something sang—in the gullies, the grasses, the sky. The life-force also flowed strongly through the scout's heart, telling him that until a person lives a day like this one, until he hears his own voice in a great silent cry of joy, he dares not die."

No white-man measurements appear in the book. In place of miles there's the distance a fat man walks in a day. "In the scene where Peta, aware of horse-chasers, tries to backtrack, I wanted him to 'inch' along. I had to say he nudged his body over the sandstone."

Hill figures the reason "free" does not occur in the root language is that there was never anything for the Indian to free himself from. There's no buck in the book or squaw (a demeaning word, equivalent to a "broad"), no chief. "The Indian doesn't have that sort of leader. Lewis and Clark met heads of families,

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The author rests on a ledge, seeking, as do Indians, a closeness to Earth that

not chiefs." Creature is used for animal and it is followed by who—the true-dog (wolf) who. Horse appears as horse because it came to the Indian via the white man. In other cases she uses either the Indian word itself, as *pte* for buffalo or *pinspinza* for prairie dog, or identifies the animal first, as Indians did, by characteristics: tall-ears for rabbit, swims-carrying-stick for beaver, traveling-dog for coyote, branched horn for elk. Thus: "The sky reddened and Peta saw the tall-ears bounding into the thickets, the traveling-dog returning to his den, a skunk plodding along in flatfoot manner."

Birds are wingeds, among them the winged with two different voices (meadowlark) and the one who sits smiling at excrement (magpie). Insects are little people of the air. One grasshopper, prized because it points-in-the-direction-of-buffalo, is *ptepazo*.

Only Indian colors appear in the book —red, black, yellow, white. There's no green, no blue, because the Indian perceives blue as a darkened green or as green removed from light. "I say sky color or I refer to sky as cloudy or clear. The Plains Indian used the same word for sky and cloud." Grass is *pezi*, designating the color most of the year—yellow.

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only a rock outcropping can provide.
Chunksa Yuha says Life Force is stone.

Black Bones, a Blackfoot, we never spoke. For long periods we sat in silence. I lit one of his last cigarettes for him before his death, at 106. I'm happy I'm me," Hill adds briskly, "living now. I do not have a thing for Indians. Bad teeth spoil too many Indian smiles. It bothers me to see impetigo on the faces of children. I don't like to watch noses blown through fingers. My friend, a gossip columnist in Los Angeles wrote, 'What kind of a crazy is Ruth to have left her husband for the Indian?' "

It was this friend to whom the manuscript was shown before it went to a publisher. "She never really approved of me, she hates Indians, but she's the best-read person I know. She said until *Hanta Yo* the only book she'd not been able to put down was *Anthony Adverse*." That was all the author needed to hear.

Evenings Ruth Hill and the two men come together at their lodge. Her husband loads the table with vegetables and berries from his garden. Deer graze outside the windows, rabbits run by, a woodcock crosses the clearing with her chick. Yuha sings. He accompanies himself on an old drum which he tunes with trips back and forth between the fire and the porch. If there's company he wears his regalia, complete with war bonnet—trappings for which Hill has no appreciation,

Fermentation: The birth of a fine red wine.

Despite the wealth of sophisticated equipment available today, there is no substitute for the judgment and care of a dedicated winemaker.

At no time is this more apparent than during the critical days of fermentation, for it is at this stage, the birth of the wine, that taste, character, bouquet, body and color are in large part determined.

Our Winemaker's Role

Consider just a few of our winemaker's responsibilities during the vinting of a fine red wine, such as our Zinfandel.

When the grapes arrive at our crusher, a State Agricultural Inspector measures sugar content and physical condition. But, in addition, our winemaker checks and tastes for grape quality.

If our winemaker feels a particular lot of grapes does not measure up to our requirements, he will divest them.

Those grapes which he approves move directly to our "crusher-stemmer" which removes the stems and then gently "crushes" the fruit.

The Right Yeast

Since fermentation results from the natural interaction of yeast with the sugars and acids in the juice of the grape, the selection of the right yeast from the many available to our winemaker is very important.

Not only is it up to the winemaker to determine the proper yeast strain to begin the process of fermentation, but he must also select the precise quantity. Too little, and the juice will ferment too slowly and the wild yeasts naturally present on the skins may again become active. Too much, and the juice will ferment too rapidly and develop a "yeasty taste." The winemaker must select the right yeast, in the proper quantity, to yield a wine with all the desirable taste characteristics in balance.

The Constant Vigil

Now begins a vigil that will remain unbroken for several days.

Because fermentation creates heat which could irrevocably destroy the delicacy of the wine, the temperature must be carefully monitored. Should it approach the upper limit of the range which we consider ideal for a wine of true excellence, our winemaker is able to protect his vintage with a sensitive cooling system.

As the liquid ferments in the presence of the skins, each passing hour brings changes in flavor, in color, in bouquet, and in body which the winemaker monitors constantly, partially with sophisticated instruments, but primarily through his own highly developed sense of taste and smell. At each tasting, our winemaker must be able to call to mind all the various vintages of his past and how they tasted at each particular stage. He must mentally compare them and predict precisely how *this* Zinfandel will taste when fully mature. This talent we have found to be more than an acquired skill; it is, rather, a rare gift.

Flavor: Skin Deep and More

As the juice ferments, skins and pulp float to the top, forming a "cap" vital to the wine's development. This is because the skins are the repository of the cells which eventually determine the character of the finished wine.

If the wine is to achieve its true peak of flavor, color, body and bouquet, the cap must not be permitted to dry out and harden. Therefore, we use a system that circulates the fermenting wine over the entire surface of the cap. The winemaker must determine exactly how often and for what duration the fermenting wine will be circulated over the cap. These are critical decisions—too much circulation will draw less desirable flavors from the skins, too little will cause the wine to be lacking in body and color.

When his tasting tells him the wine is fermented to the precise degree that augurs a superb Zinfandel, he has the wine carefully drawn off and removed to the cooperage for aging.

Now, finally, the wine can rest. And so, for the moment, can our winemaker.

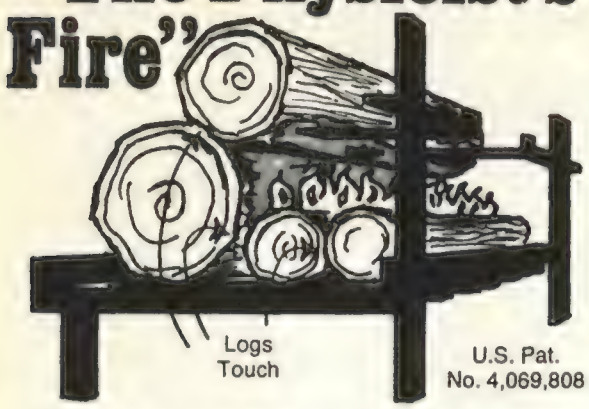
Our Goal

The same meticulous attention to detail so evident during the fermentation process is given at every step of our winemaking process. Here at the winery of Ernest and Julio Gallo, our purpose is to bring you the finest wine that skill and care can produce.

Ernest and Julio Gallo, Modesto, California

Write for "The Art of Creating Fine Wines"
E & J Gallo Winery, Dept. 18, Modesto, Ca. 95353

"The Physicist's Fire"



Hot, even, slow-burning, easy to start, is how *TIME* described the simple, elegant fire designed by research physicist Lawrence Cranberg. (Science Section, Dec. 22, 1975).

Place logs on the patented Texas Fireframe® grate to form a slot-shaped cavity that faces you. Ignite paper in the cavity.

Eureka! The fire takes hold quickly, burns evenly, steadily *in* the cavity. That means the cavity throws a *beam* of radiant energy at you, so the fire is hot but fuel-efficient.

Texas Fireframe's height-adjustable arms give you easy set-up and a new option for control of the fire. The arms lock by friction.

From *Scientific American*

(August, 1978, pp. 142–146)

"Cranberg's conception of the radiation pattern from his log holder is correct . . . little of the radiated heat was lost upward to the overhang or the chimney . . . nearly all of it must have been coming out into the room."

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since the bonnet dates from later than her period. To him she says, "You look like Calvin Coolidge."

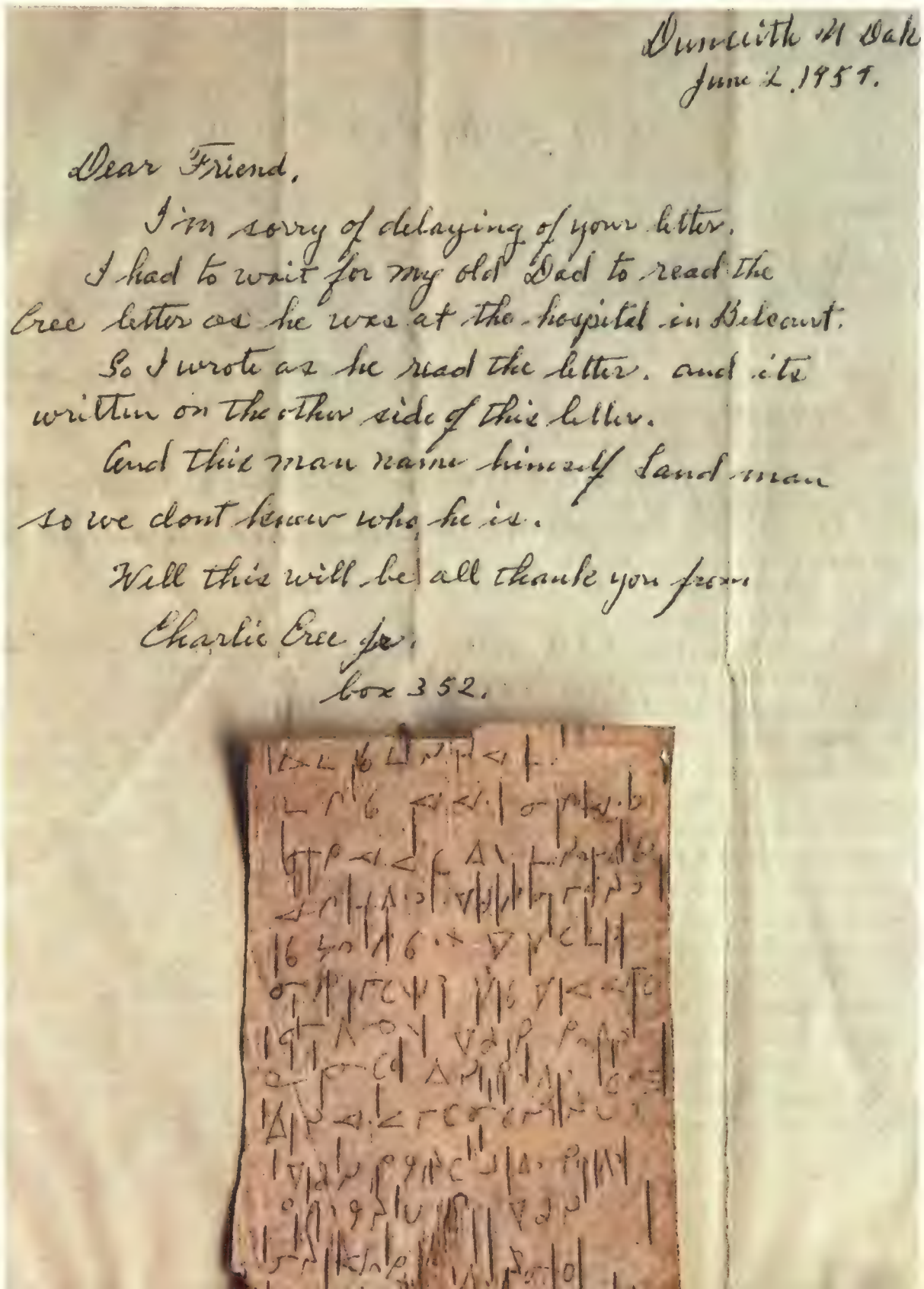
The Indian sings in the five-note minor tone the *hunka* song, which begins like a wind with its aspirated sounds—the song of the hide-and-seek for the tepee of the relative-by-choice. He sings the theme song of the book, explaining that it will *not* accompany a war party bursting over the rim of a hill yelling, but rather, one man on horseback. It is the song of a lone warrior, singing to raise his full power, horse and rider taking on the power of the song as their own. "Hanta yo! Clear the way! In a sacred manner I come," commanding the life force: "Grandfather, hear me! Every creature that ever flew, walked, crawled. . . . I own the earth, and so I come."

"That's all the Indian religion there ever was," says the author. "No God, gods, Great Mystery, but a command to the life force. If you're not Indian it takes 30 years to discover it."

As for herself: "I don't to this day wear moccasins. No way! I've never been given a name or made an honorary princess. It's no compliment. I've never been adopted by an Indian tribe."

She goes livid over activist Indian movements led by "Indians with makeup from the Avon lady. Do I feel guilty about the land? Hell, no, I do not."

Birchbark letter from "Land man" asks for meeting with Ruth since she is "truly a friend." Charles Cree jr. returned it with "old Dad's" translation.



Dunseith N Dak
June 2, 1959.

Dear Friend,

I'm sorry of delaying of your letter.
I had to wait for my old Dad to read the Cree letter as he was at the hospital in Belcourt.
So I wrote as he read the letter. and its written on the other side of this letter.
And this man name himself Land man so we dont know who he is.
Well this will be all thank you from
Charlie Cree Jr.
box 352.

Fill out this coupon and save the children

Complete this simple questionnaire, and befriend a needy child through Save the Children. For only fifty-two cents a day, your money, combined with that of other sponsors, can breathe new life into an impoverished village...help hardworking people in their fight for dignity...turn despair into hope for a child who has known only disaster. Fifty-two cents may not buy much where you live: But for the poorest of the poor where the need is so desperate, it can work miracles.

SM 12/8

My Name Is _____
(please print)

Address _____

City _____ State _____ Zip _____

Tell us how you want to help, by answering these questions:

1. What kind of child would you like to help?

☐ Boy ☐ Girl ☐ No preference

2. What geographical area are you interested in?

Urgent need exists in all the areas listed below, especially overseas. If you have a strong preference for a particular location, check the area of your choice. If not, won't you please let us assign a child where the need is greatest?

☐ **Certainly. Choose a child for me in an area of greatest need.**

I strongly prefer:

☐ Appalachia (U.S.)
☐ Bangladesh
☐ Chicano (U.S.)
☐ Colombia
☐ Dominican Republic
☐ Honduras
☐ Indian (Latin America)
☐ Indian (U.S.)
☐ Indonesia
☐ Inner Cities (U.S.)
☐ Israel
☐ Korea
☐ Lebanon
☐ Mexico
☐ Rural South (U.S.)
☐ Upper Volta

3. Would you like a picture of your sponsored child?

Shortly after we select a child for you, we can send you a photograph and brief personal history, if you desire.

☐ Yes ☐ No

4. Would you like to exchange correspondence?

If desired, correspondence can build a meaningful one-to-one relationship and provide a unique educational experience for the sponsored child. In areas where illiteracy is high, a village representative will keep you informed of the progress your child is making. Translations, where necessary, are supplied by Save the Children.

☐ Yes ☐ No

5. Would you like information about the child's community?

Several times a year you can receive detailed reports on the activities and projects being undertaken in the community to benefit your sponsored child. These community reports show how your money is being used most effectively for permanent improvements to the child's environment—for health care, education, food production, nutrition, and community training. Would you like to receive such information?

☐ Yes ☐ No

6. How do you wish to send your sponsorship contribution?

Enclosed is my check for $_____ .

☐ Monthly, $16
☐ Quarterly, $48
☐ Semi-annually, $96
☐ Annually, $192

7. Do you wish verification of Save the Children credentials?

Save the Children is indeed proud of the handling of its funds. Based on last year's audit, an exceptionally large percentage (77.3%) of each dollar spent was used for program services and direct aid to children and their communities. Due to volunteered labor and materials, your donation provides your sponsored child with benefits worth many times your total gift. Would you like to receive an informative Annual Report (including a summary financial statement)?

☐ Yes ☐ No

(A complete audit statement is available upon request.)

8. Would you rather make a contribution than become a sponsor of an individual child at this time?

☐ Yes, enclosed is my contribution of $_____.

☐ Check here for general information about our unique programs for aiding impoverished children.

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Mail to:

David L. Guyer, President

Save the Children®

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photo: Bentley Kassal

Photograph by
Valerie Taylor

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One of the killers you'll encounter in DANGEROUS SEA CREATURES

Razor-edged tooth of a great white

The great white... most feared of the ocean's predators. He grows to a length of 21 feet, and to a weight of three tons. His teeth measure a full two inches, and are replaced, when damaged, within 24 hours. His acute sense of smell can detect one ounce of fish blood in one million ounces of water. His nerve endings can pick up erratic vibrations—such as those of a swimmer in trouble—at a distance of 600 feet. The great white claimed the lives of thousands of shipwreck victims during World War II...yet most attacks take place in waist-deep water! You've heard the myths about the great white shark...now, read the stranger-than-fiction truth about the deadliest of all sharks in *Dangerous Sea Creatures.* It's your first volume in the WILD, WILD WORLD OF ANIMALS library, based on the popular TIME-LIFE TELEVISION series.

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- **the giant grouper,** reportedly capable of swallowing a diver *whole!*
- **the barracuda,** whose stealthy approach and needle-sharp teeth make him more feared than the shark in some waters

Embark on an action-photo tour of the treacherous undersea world. More than 125 incredible full-color photographs (many of them taken at the risk of life and limb) give you a close-up view of the ocean's monsters second only to actually confronting them.

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The chart is yours to keep, just for examining *Dangerous Sea Creatures* for 10 days free. Mail our card today. Or write TIME-LIFE TELEVISION, Time & Life Building, Chicago, Illinois 60611.

The Zambezi shark of South Africa stalks its prey . . .

Discover the action-photo excitement of

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. . . and bites a young gray shark in preparation for devouring it.

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Book reviews

The Greek Islands
Lawrence Durrell
(Viking, $25)

When I lived in Greece, the questions I heard most often were about the islands. Where should I go? What should I do? How should I eat and sleep? Lawrence Durrell has undoubtedly heard these same questions at least a million times. As novelist, poet and travel writer, Durrell lived in the Greek islands for eight years out of his eminent literary life, and now he has written a book that tries to answer a few of these persistent queries from confused wayfarers.

Durrell's prose, to be sure, turns rather purple at times. And this rambling hodgepodge of a volume is not really a guide, or a history, or an essay. The numerous photographs capture well the faces and figures of the Hellenic landscape, but, despite the hefty price tag, this is not quite an art book either. What this is, really, is Larry Durrell sitting in a taverna in the evening after a day of sailing, his glass full of that pungent wine called retsina (if you drink it, he gushes, "you will live forever"), telling whatever stories that spring to his well-watered and well-traveled mind. And he makes a good companion, whether you're at home, dreaming of warm beaches during a cold winter, or actually dawdling at one of his favorite cafés in Crete, "just feeling the sunlight on your fingers, and tasting it in your glass."

As he meanders through the Greek archipelago, Durrell evokes with relish some of his favorite places, the sort that any traveler would "feel sorry to have missed." Here he is on Rhodes, exploring the temple that perches high above the village of Lindos: "Your mind will say, 'Go on then, jump!' and for a long moment you will hover between the worlds of the dead and the living, hanging like a fly to the edge of the citadel. It is an extraordinary place, the temple of Lindos; so light and aerial, so pure and in tune with the sky above."

Temple of Lindos, link from Earth to sky.

The flowers and the rocks, beautiful as they are, only set the stage for the real Greek drama, and I'm particularly fond of the way Durrell matches up myth and place. Archaeologists are continually finding evidence to show that most legends contain a core of truth, and for Durrell, as for all the true Greeks, the ancient gods and heroes are part of the community, local characters in village history. Musing on a beach in Corfu, he says: "Odysseus *must* have met Nausicaa at Paleocastrizza; it is not possible to believe otherwise." Once you've sat on that beach watching the sun splash and bubble in the crystal water, you know he's right.

Around Durrell's taverna table there is always time for another drink, another digression. The section on Rhodes leaps off into an account of how the Colossus came to be built. Mention Kalymnos, and you get a rundown on the island's unique sponge-fishing industry. And on Paros? The marble quarried here outstrips Carrara, insists the storyteller. A visit to Salamis, and out pours the story of how the noble Greeks bashed the scurrilous Persians in 480 B.C. Lesbos provides an excuse for a disquisition on homosexuality. A glance at the sea captains' houses lining the port of Hydra, and we are off and running with a stirring history of the Greek War of Independence.

Durrell revels in the folklore and superstition that cling to this rocky land, and he cheerily believes in a good deal of it. He recalls, for instance, the time on Crete when his wife wanted some saffron, and found she needed a prescription to purchase this innocent condiment. Saffron, explained the druggist, was thought by the ancients to be an aphrodisiac, and somehow that legend survives in current pharmaceutical practice.

The magic of Greece lies not in its stones, but in the spaces between the stones, not in its sounds, but in its silences. In this world of tides and temples, the most precious gift Greece has to offer is time: time to sit, to swim, to eat, to think, to remember. The Greeks, Durrell notes, have no need for psychoanalysts. They are a poor people, rooted in their harsh land, dancing to a simple rhythm. "Greece," he writes, "is a wonderful school for hoggish nations; you suddenly realize that you don't need all the clobber of so-called civilization to achieve happiness and physical well-being."

Discovering Greece is like falling in love. It is always fresh, yet always familiar. "You sit," says Durrell on the quay at Corfu, "like so many before and so many will do after you, quite still and silent over your drink, watching the dusk fall." Go to Greece. Listen to the silence. And listen to Durrell.

—*Steven V. Roberts,* former chief of the Athens bureau, *New York Times*

Levi's
Ed Cray
(Houghton Mifflin, $9.95)
Coca-Cola, An Illustrated History
Pat Watters
(Doubleday, $12.95)

Move over, apple pie. It is time to anoint new symbols of America, and these two books argue persuasively for Levi's and Coca-Cola.

It's hard to forget someone who gives you Crown Royal.

SEAGRAM DISTILLERS CO., N.Y. BLENDED CANADIAN WHISKY. 80 PROOF.

In 1955 Archibald MacLeish wrote: "America is a map of endlessness, of opening out, of forever and ever." The Levi Strauss and Coca-Cola companies reflect this sense of limitlessness, of unbounded enthusiasm and earnestness. Founded by a peddler and a pharmacist, they represent America at her best—independent, fair at play and at work, ambitious but humane.

Levi's, the better of the books, is a portrait of a man and his family as much as it is a study of successful merchandising and manufacturing. It is also a portrait of the Republic in its adolescence—awkward and ungainly but trying hard to grow up strong. I would recommend it as required reading for students of American history and economics.

The odyssey that took Levi Strauss, an immigrant peddler, from Lexington, Kentucky, to San Francisco in 1853, where "Israelite and Gentile existed in commercial symbiosis," is quintessentially American. Surviving earthquakes, fires and not a few man-made disasters such as the Civil War, Levi Strauss was able, finally, to open a dry-goods store. In 1872 a tailor named Jacob Davis wrote Strauss a letter suggesting a partnership and a patent. In a letter destined to become a classic in the annals of American business, Davis described the blue denim overalls he was sewing and selling: "The secratt of them Pents is the Rivits that I put in those Pockets and I found the demand so large that I cannot make them up fast enough." Then, in what would prove masterful understatement, Davis closed with: "These looks like a trifle hardley worth speakeing off but nevertheless I knew you can make a very large amount of money on it."

So the tailor and the peddler set out to work together to make denim jeans synonymous with America, in spite of their Italian and French origins. (According to the author, jeans comes from "Genoese" sailcloth and the word denim is a contraction of *serge de Nîmes*—cloth made in Nîmes, France.) By coupling quality with decency and efficiency, the Strauss family and its offspring enjoyed enlightened prosperity.

This book is full of stories of charity and compassion: no-questions-asked credit to disaster victims, uninterrupted salaries to employees during both the 1906 earthquake and the Depression, an

The immigrant peddler is honored in Beth Hatefutsoth Museum, Tel Aviv.

unbidden equal employment policy as early as World War II, an aggressive campaign in the South to build integrated plants.

Of all the impressive initiatives taken by the company, however, none is more convincing than its genuine interest in the welfare of its employees. For a family-run business—now headed by the fifth generation—Levi Strauss seems remarkably free of paternalism. Yet it does appear to have been run, at least in its first hundred years, as an extended family. Combining Horatio Alger economics with Santa Claus philanthropy, a tremendous sense of loyalty and sharing was inspired in the employees which seems to have survived the company's growth. Levi Strauss knew instinctively that generosity made good business sense. Or, as a shrewd saying so indelicately has it: "Money is like manure. If you spread it around it does a lot of good. But if you pile it up in one place, it stinks."

In the end, of course, it is not the charity of a company but the reliability of its product that counts. Some of the book's most delightful moments are stories from faithful and intrepid Levi's owners about "them Pents" and their legendary durability. Without them, said the late Earl Warren, "I'd have been in the poorhouse . . . with my five children."

Mr. Cray has provided us with a well-written and carefully researched celebration of a "funny little San Francisco apparel firm" and how it grew.

Coca-Cola: An Illustrated History is also a carefully researched study of an enlightened American company; unhappily, it is not also well written. While the earnestness and enthusiasm with which it is presented are touching, *Coca-Cola* is full of far too much annoying gush: "To play the tape of an interview with him is to hear, time after time, at frequent intervals, his hearty, genuine, infectious laugh ring out."

More chronicle than narrative, the book's factual integrity does not compensate for its lack of coherence. The author should be commended for ferreting out the smallest detail; however, his enchantment with minutiae and the fragmented manner of his presentation are painful. Reading the book is rather like going to a Byzantine church and not being able to back far enough away from the tiles so that you can see the mosaic as a whole.

Certainly, the story of how a pharmacist's concoction for dyspepsia grew into a multibillion dollar international corporation is interesting reading. More interesting, perhaps, is how this mixture insinuated itself into our lives to become what editor William Allen White termed the "sublimated essence of all that America stands for." Mr. Watters does give us some insight into why he thinks this is so. Coca-Cola's patriotic role in World War II, the advertising promotion aims of the company—"human interest, simplicity, honesty"—and the national craving for a "pause that refreshes" all make Coca-Cola a winner as a symbol; but not, sad to say, as a book.

—Jill Merrill
Washington free-lance writer

On Human Nature
Edward O. Wilson
(Harvard University Press, $12.50)

Sociobiology, you may recall, achieved some notoriety during 1977 when, among other things, it offered biological explanations for socially undesirable human traits. In some quarters this was interpreted as excusing and even advocating deceit, selfishness, homosexuality, and so on. At the center of the controversy stood Harvard's Professor Edward O. Wilson, author of the monumental *Sociobiology: The New Synthesis* (1975), accused along with his associates not only of racism and mushy metaphors but of lending strength to the devil.

The popular criticism, by and large, was overheated and ill-informed, but the academic criticism could not be dismissed

so easily. I personally liked the general thesis, but where it was applied to Man I preferred the judgment of a friend—a British scientist with respectable proximity to the inner circle—who confided that "sociobiology is really just a senior common-room joke, an amusing intellectual exercise that reeks of port and nuts." He added somewhat testily: "But those American chappies will insist on taking it all so seriously."

Well, Edward Wilson has just published a new book, *On Human Nature,* and it deserves to be taken seriously. There is a whiff of crusading fervor about it, to be sure, but not a hint of port or nuts. It is a book *about* science, writes Wilson, not a book *of* science. This distinction will not assuage the doubts of his critics among the scientists, and it may well rouse his lay audience to new heights of intellectual impudence. But no matter; Wilson is writing principally as a man who cares, rather than as a scientist who knows it all (though at times he pretends he does).

The book is a remarkable view of a scientist groping for a context in which to set the awesome truths about the roots of human nature that he believes his science will eventually reveal. If they are indeed truths, then human society must somehow assimilate them, and *On Human Nature* is an important step to be taking in that direction.

Mankind has no place to go, Wilson says—no purpose, no goal beyond our own biological nature. The brain exists because it promotes the survival and multiplication of the genes that direct its assembly; even esthetic judgments and religious beliefs must have arisen by the mechanistic process of natural selection. The search for knowledge has left us no mystery, no life after death; these "transcendental goals" that always sustained mankind "have faded," he says. "They went one by one, like mirages, as we drew closer."

Ultimately, Wilson believes, this inexorable search for knowledge will uncover "the innate censors and motivators in the brain that affect our ethical premises and from which morality evolved as instinct." Then science will investigate the origin and meaning of human values, and eventually be able to manipulate the deepest workings of our minds, thus presenting mankind with the terrible

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dilemma of whether it should or should not attempt to meddle with the "very core of our humanity."

It must have been the germ of these beliefs that led Wilson to conclude *Sociobiology: The New Synthesis* with a paragraph of bleak foreboding, offering mankind just another hundred years, and that without even the comforting "hope of a promised land."

It is, then, cheering to find him ending *On Human Nature* with an entire chapter devoted to hope and winding up the book with "blind hopes that the journey on which we are now embarked will be farther and better than the one just completed." Why the change of heart?

The truth is, I suspect, that in researching the literature on human nature, Professor Wilson ventured well beyond the strict dictates of biological science and found his own humanity responding to the freer thought that the arts enjoy.

An important theme of the book is a sustained plea for closing the gap between the humanities and science. Philosophers, he says, have yet to adopt an evolutionary perspective, and "very few of the great writers who can trouble and move the deeper reaches of the mind ever address science on its own terms," even though "the evolutionary epic is probably the best myth we will ever have." Scientists, he believes (quoting J. B. S. Haldane), "are devoid of any perception of literary form."

On Human Nature is, then, a mix of the scientific and the humanitarian. Those better qualified no doubt will assess the former, but I shall commend the latter, for when a scientist with the discipline and stature of Edward O. Wilson is able to perceive in mankind a "perpetually renewing, optimistic cynicism with which rational people can accomplish a great deal," then there is indeed hope for us all.

—*John Reader*
Coauthor of *Pyramids of Life*

Spaceships of the Mind
Nigel Calder
(The Viking Press, $12.50)

The latest from Nigel Calder, an "accompaniment" to a BBC series, is the ultimate wish-book for a technological people. Calder has collected optimistic blueprints for a future in which human beings overcome the physical limitations of the Earth.

Bringing life with them (we may need giraffes, as well as algae, in space), they turn to the asteroids for metals, the moons of the outer planets for methane and ammonia, and Jupiter itself for the helium isotope needed for "clean" fusion power. Santa Claus machines turn raw materials into finished products, including replicas of themselves, and eventually the people of Earth spread through the Galaxy, assuring survival of the species no matter what astronomical catastrophe might befall the home planet.

Some of the ideas will be familiar to SMITHSONIAN readers, such as Gerard O'Neill's plans (February 1976) for large space colonies to orbit the Earth. Others may merely sound familiar, for example Sol Spiegelman's assertion that human beings were created by DNA to carry the helix of life into space and assure its survival. The more grandiose proposals may be unfamiliar, including Freeman Dyson's breathtaking scheme to convert the material of the planets into artificial space cities and arrange them in a netlike sphere around the sun.

Calder says he and BBC producer Dick Gilling started with just one prejudice: "that the old dream of a better existence for mankind, based on science, was not yet extinguished." They sought out scientists who feel that human beings have "the collective knowledge and skill to start transforming the universe to their own purposes."

Yet the book is not all "big science" by any means. This roundup of the future includes a section on the arks (self-contained living and agricultural units) being built by the New Alchemy Institute (SMITHSONIAN, February 1975), and a good part of one chapter considers the problems of life support in spacecraft and extraterrestrial settlements. The microbial populations of human beings themselves make any sterilized, Man-managed system unattainable. We're going to have to take soil, plants, animals, even whole marshes with us. "Indeed one of the great benefits of the space enterprise," Calder writes, "will be in forcing attention to the stability of small ecological systems. . . . The human love of green and pleasant landscapes may be thoroughly vindicated as a guide to . . . survival."

Calder also gives considerable attention to the human questions involved. Who will go into space, and to what kinds of control will they be subject? Will the day come when small private groups and lone entrepreneurs may buy secondhand spacecraft and mine the asteroids? Or will space remain the fief of governments and large corporations? And what of politics in space? Calder includes a hypothetical map in which Earth's sphere of influence ends at the Ceres asteroid belt; the far reaches of the solar system are controlled by the colonists on Callisto, one of the Galilean moons of Jupiter.

Calder is clearly less enthralled with the future possibilities of biological research than he is with physics and engineering. He argues that both cloning and the prolonging of individual human life present a danger to the species, and he quotes with approval scientists who oppose efforts to control our evolution and to create mechanized space people in whom only the brain is human.

In fact, respect for life is a leitmotiv of the book. Dyson, architect of the Dyson Sphere and proponent of interstellar ships propelled by nuclear explosions, proposes that we could stop the increase of carbon dioxide in the Earth's atmosphere if every man, woman and child on the planet would plant one tree every day for a year. He also suggests sending into space not some marvelous machine but tree seeds, to land and live where they can and eventually transform a presumably lifeless planet into a living place so humans can follow.

Sometimes Calder seems overly enthusiastic, as when he says that private colonizers should be able to buy secondhand spaceships by the end of the next century. He seems so caught up in the future that he continually refers to the 1970s in the past tense, the fairly distant past. But many have dreamed of going to the stars, and Calder introduces us to some who have figured out quite precisely how to do it.

The ideas are presented clearly and critically. Even if you have never felt the slightest twinge when looking at the night sky, never felt that the human race needed an ultimate dream, this book will give you a new appreciation for the complexity of life here where it started.

—John P. Wiley jr.
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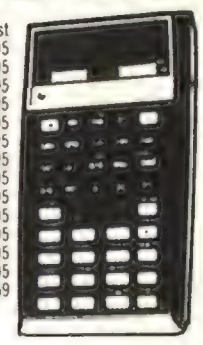

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Additional reading

First flights (p. 36)

Langley, Man of Science and Flight by J. Gordon Vaeth, Ronald Press (New York), 1966

I Have Considered the Days by Cyrus Adler [Langley's friend], Jewish Publication Society of America (Philadelphia), 1941

The Papers of Wilbur and Orville Wright, edited by Marvin W. McFarland (2 vols.), McGraw-Hill, 1953

Miracle at Kitty Hawk, edited by Fred C. Kelly, Arno Press, 1972

Flight Through the Ages by C. H. Gibbs-Smith, Thomas Y. Crowell, 1974

Victorian High Renaissance (p. 48)

Victorian Painters by Jeremy Maas, Barrie and Rockliff, The Cresset Press (London), 1969

Victorian Olympus by William Gaunt, Jonathan Cape, Ltd. (London), revised 1975

Lord Leighton by Leonée and Richard Ormond, Yale University Press, 1975

Alfred Gilbert by Isabel McAllister, A & C Black, Ltd. (London), 1929

Peregrines (p. 58)

The Peregrine by John A. Baker, Harper and Row, 1967

"Propagation of Large Falcons in Captivity" by Tom J. Cade, James D. Weaver, Joseph B. Platt and William A. Burnham, *Raptor Research,* Spring/Summer 1977

"Release of Peregrine Falcons by Hacking" by S. Sherrod and T. J. Cade, proceedings of 1977 annual meeting of International Association of Falconry and Conservation of Birds of Prey, British Falconers Club (Oxford), 1978

"Alaska's Falcons: The Issue of Survival" by Tom J. Cade and Clayton C. White, *The Living Wilderness,* January/March 1976

To Save a Bird in Peril by David R. Zimmerman, Coward, McCann & Geoghegan, Inc., 1975

Uranus (p. 66)

William Herschel and the Construction of the Heavens by M. A. Hoskin, Oldbourne Book Co. (London), 1963

The Shadow of the Telescope by Günther Buttmann, Charles Scribner's Sons, 1970

"Discovering the Rings of Uranus" by James L. Elliot, E. Dunham, R. L. Millis, *Sky & Telescope,* May 1977

"Uranus and Neptune" by Michael J. S. Belton, *Astronomy,* February 1977

"The Structure and Atmosphere of Uranus" by R. E. Danielson, *Icarus* (Vol. 30), 1977

"The Radii of Uranian Rings" by J. L. Elliot, E. Dunham, L. H. Wasserman, R. L. Millis, J. Churns, *Astrophysical Journal* (Vol. 83, No. 8)

"Lord of the Rings" by E. D. Krupp, *Griffith Observer,* August 1977

Nature Conservancy (p. 76)

The Nature Conservancy News (Arlington, Virginia), summer 1976, spring, winter, fall 1977, January/February 1978, March/April 1978, May/June 1978, July/August 1978

Conservation of Life on Earth by D. W. Ehrenfeld, Oxford University Press, 1972

Life on a Little-Known Planet by Howard Ensign Evans, E. P. Dutton, 1968

"Garden of Eden to Weed Patch; The Earth's vanishing genetic heritage" by Marc Reisner, *National Resources Defense Council* (Washington, D.C.), January/February 1977

Edvard Munch (p. 88)

Edvard Munch: The Scream by Reinhold Heller, Viking Press, 1972

Munch by Thomas M. Messer, Harry N. Abrams, 1970

Edvard Munch: Symbols and Images, exhibition catalog, National Gallery of Art, 1978

Edvard Munch by Josef P. Hodin, Praeger, 1972

Edvard Munch by Johan H. Langaard, McGraw-Hill, 1964

Sponges (p. 97)

Wonders of Sponges by Morris K. Jacobson and Rosemary K. Pang, Dodd, Mead & Co., 1976

Invertebrate Zoology by Robert D. Barnes (3rd edition), W. B. Saunders Co. (Philadelphia), 1974

The Biology of the Porifera, edited by W. G. Fry, Academic Press (London), 1970

Shallow-Water Sponges of the Western Bahamas by Felix Wiedenmayer, Birkhaüser Verlag (Basel, Switzerland), 1977

Miniature house (p. 105)

Inside the World of Miniatures & Dollhouses: A comprehensive guide to collecting and creating by Bernard Rosner and Jay Beckerman, David McKay Co., 1976

The Complete Book of Making Miniatures for Room Settings and Dollhouses by Thelma R. Newman and Virginia Merrill, Crown Publishers, 1975

Make and Furnish Your Own Miniature Rooms by Marian Maeve O'Brien, Hawthorne Books, 1976

American Rooms in Miniature and *European Rooms in Miniature* by Mrs. James Ward Thorne, Art Institute of Chicago, 1962

Ruth Hill (p. 111)

Crazy Horse by Mari Sandoz, Hastings House, 1955

The Man Who Killed the Deer by Frank Waters, University of Denver, 1942

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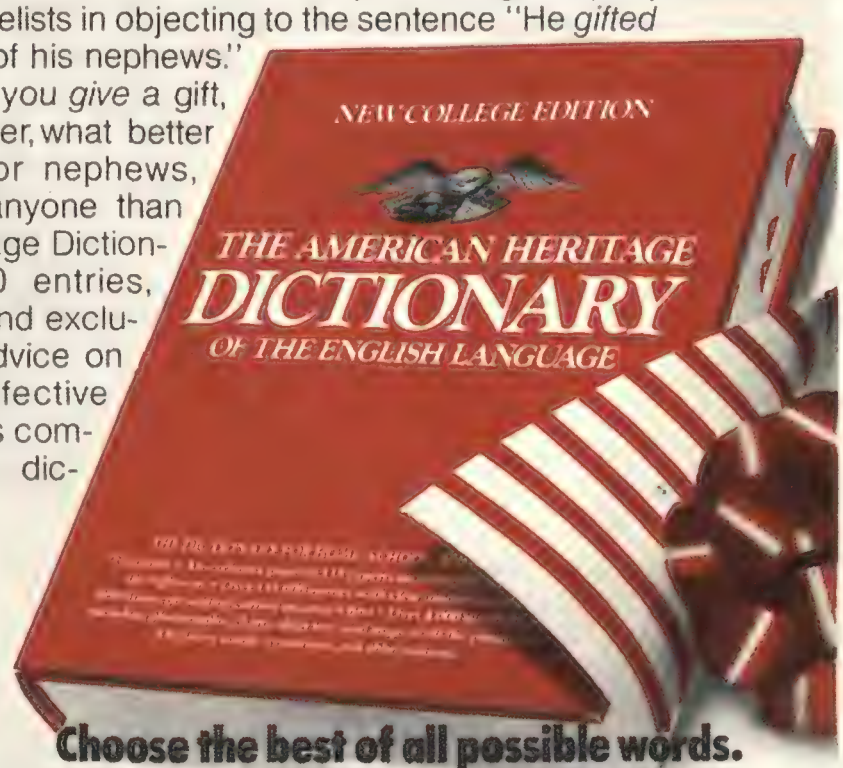

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Smithsonian highlights

December special events

Handbell ringers, madrigal singers, puppeteers, storytellers, nutcracker carvers, mimes, mummers, jugglers, bakers and magicians—all these revelers and more are part of the traditional celebration of Christmas and Hanukkah at the Smithsonian Institution this month.

Symbolizing the festivities, most of which take place at the Museum of History and Technology from December 26 through New Year's Eve, are 13 sparkling trees. They go on view December 15 and deck the first and second floors of the museum. Model trains in the Railroad Hall, strategy games, ready for the playing, in the mathematics exhibit area, and the White House Doll House (it belonged to Grover Cleveland's daughters) are but a few of many enticements.

There's a wide assortment of Yuletide music, including carol singing around a piano from noon to 4 P.M. daily at the Pendulum. In the Hall of Musical Instruments there are twice-daily demonstrations of mechanical Christmas music on machines ranging from a 19th-century barrel organ and Edison cylinder phonograph to a 1951 cartridge wire recorder. Holiday-related film classics *(e.g., The Wizard of Oz),* along with poetry and dramatic readings, are also on the agenda.

This month, if cold weather arrives on schedule, the ice skating rink on the Mall, just east of the Museum of Natural History, opens. So does a bright, new, multiarts Discovery Theater on the premises of the old Puppet Theater in the Arts and Industries Building. It's been dark since May 1977 and the children have been very patient.

(If you're planning a Smithsonian visit, be sure to send a postcard or telephone to request an information packet: Associates Reception Center, Smithsonian Institution, Washington, D.C. 20560; 202-381-6264; allow two weeks for receipt.)

Upon Arrival at the Smithsonian

Members are invited to begin their visit by registering—between 10 A.M. and 4 P.M. daily—with the Associates' receptionist in the Smithsonian castle on the Mall. Here special orientation materials are available; membership cards can be replaced (upon showing your SMITHSONIAN address label); and the Associates Lounge, a restful oasis, is located.

The Court
The Associates' own restaurant in the Museum of Natural History—membership cards required, buffet style: lunch weekdays, 11 A.M.-3 P.M.; breakfast weekends, 8:30 A.M.-11 A.M. (use Constitution Avenue entrance); and brunch weekends, 11 A.M.-3 P.M. New prices now in effect: $3.25 for adult's breakfast, $4.25 for lunch or brunch; $1.90 for child's breakfast, $2.90 for lunch or brunch.

Trees of Christmas flank Greenough's George Washington off MHT's Flag Hall.

Museum Hours
All museums closed December 25; otherwise open 10 A.M. to 5:30 P.M. daily, with exception of National Zoo (9 A.M.-4:30 P.M.). Anacostia Neighborhood Museum temporarily closed until February 4.

Public Dining Facilities
Museum of History and Technology cafeteria (11 A.M.-2 P.M. daily); snack bar (10 A.M.-5 P.M. daily). Snack bars also open daily in Air and Space Museum (11 A.M.-5 P.M.) and Museum of Natural History (10 A.M.-5 P.M.). National Zoo cafeteria (8:30 A.M.-4 P.M.). Freshly prepared sandwiches, soups and salads served in National Collection of Fine Arts' and National Portrait Gallery's Patent Pending restaurant (11 A.M.-3.30 P.M. weekdays; 11:30-4 P.M. weekends).

Parking
Free parking—a very limited amount—is available on Madison and Jefferson Drives along the Mall. Air and Space Museum underground garage (7th St., S.W., just north of Independence Avenue) is open 7 A.M.-6:30 P.M. weekdays; 9:30 A.M.-6:30 P.M. weekends, holidays (75 cents an hour for first three hours; $1.10 an hour thereafter).

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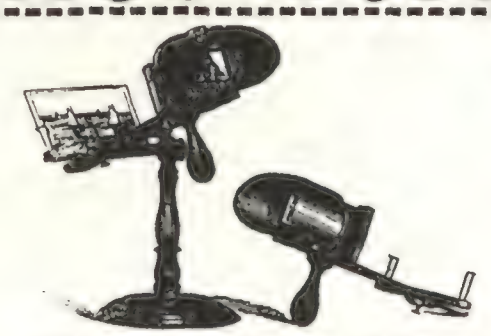

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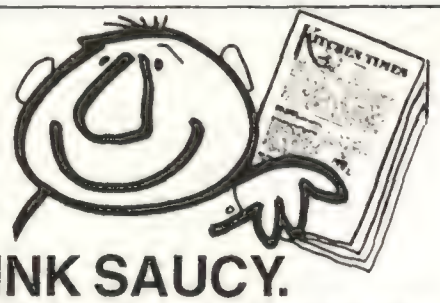

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Smithsonian Division of Performing Arts (box office number: 202-381-5395)

• "20th Century Consort" (December 10, 7 P.M.)—Guest artists are the Emerson String Quartet. Hirshhorn Auditorium.
• "Smithsonian Chamber Players" (December 17, 18, 8 P.M.)—Four Bach masterworks on rare period instruments from the Smithsonian Collection. Museum of History and Technology's Hall of Musical Instruments.
• "Solo Jazz Piano" (December 18, 8 P.M.; free workshop, 4:30 P.M.)—Don Ewell (stride), Dave McKenna (swing) and Sammy Price (boogie woogie and blues) play traditional jazz. Museum of Natural History's Baird Auditorium.

Radio Smithsonian

This program of music and conversation is broadcast weekly on approximately 50 stations across the country. For local times, contact your public radio station:
• "A Briton's America" (week of December 3)—Marcus Cunliffe turns a British eye on Yankee customs and traditions.
• "Flying for Fun" (week of December 3)—The soaring pleasures of hang gliding, sky diving, frisbees and boomerangs.
• "From *Birdie* to *Annie*" (week of December 10)—Charles Strouse, composer of *Annie* and *Bye, Bye, Birdie,* takes musical look at a Broadway songwriter's life.
• "Sweet Melody: The Story of the Dulcimer" (week of December 17)—The musical history of hammered dulcimers.
• "The Natural Thing" (week of December 17)—A visit to the Naturalist Center in the Museum of Natural History.
• "Anything Goes" (week of December 24)—Martin Williams, Smithsonian jazz program director, introduces new pressing of the 1934 Cole Porter musical, with Ethel Merman and original cast members.
• "The Hutchinsons in Concert!" (week of December 31)—The Hutchinsons (Osmond generation take note) were America's No. 1 19th-century singing group.

Smithsonian Institution Traveling Exhibition Service

SITES circulates exhibitions to hundreds of cities throughout the United States. To sponsor a show in your community, write to Eileen Harakal, SITES, Smithsonian Institution, Washington, D.C. 20560; here are some December openings:
• San Francisco (December 2-31)—"Subways, An Underground Evaluation," Powell Street Station (BART).
• Chicago (December 9-January 7)—"America's Architectural Heritage," ArchiCenter.
• Muncie, Indiana (December 9-January 7)—"America's Architectural Heritage," Ball State University.
• Lexington, Kentucky (December 16-January 14)—"Images of Old Age in America," University of Kentucky.
• Alpena, Michigan (December 16-January 14)—"Sculpture of Jacob Epstein," Jesse Besser Museum.
• Anaconda, Montana (December 16-June 10)—"Photographing the Frontier," Montana Art Gallery Directors' Association.
• Trenton, New Jersey (December 9-January 7)—"Black Presence in the Era of the American Revolution," Trenton State College.
• New York City (December 11-January 28)—"Buildings Reborn: New Uses, Old Places," Museum of the City of New York.
• Providence, Rhode Island (December 2-January 14)—"Daum: 100 Years of Glass and Crystal," Rhode Island School of Design.
• Chattanooga, Tennessee (December 9-January 7)—"Antarctica," Hunter Museum of Art.
• Houston, Texas (December 30-January 28)—"And Now a Message: A Century of American Advertising," University of Houston, Downtown College.
• Morgantown, West Virginia (December 30-January 28)—"The Seat of American Invention," West Virginia University.

Smithsonian Museums

Arts and Industries Building
"Discover Puppets!" (December 27-January 7)—Ventriloquist Susan Linn is the first of eight solo or group performers appearing in new Discovery Theater (box office number: 202-381-5395).

Cooper-Hewitt Museum (the Smithsonian's National Museum of Design in New York)
• "The Shopping Bag: Portable Graphic Art" (December 9-January 27)—More than 100 carryalls for the holiday rush—from 19th-century bandboxes to today's museum-status collectibles.
• "Ornament in the Twentieth Century" (ongoing)—Ornamental aspects of archi-

tecture, interior and graphic design, exterior public spaces and personal accessories such as jewelry and cosmetics.

Freer Gallery of Art
"The Brush of the Masters: Drawings from Iran and India" (SMITHSONIAN, November 1978)—Courtly art ranging over four centuries, two continents and civilizations, and many dynasties.

Hirshhorn Museum & Sculpture Garden
• "Hirshhorn Holiday" (December 2, 10 A.M.-2 P.M.)—Around-the-museum capers for children (minimum age six and must be accompanied by an adult).
• "Ben Nicholson: Fifty Years of His Art" (December 21-February 18)—First major American retrospective, on tour from the Albright-Knox Art Gallery, Buffalo, of the great contemporary English abstractionist.

Museum of Natural History
"The Legacy of the Dodo: The Endangered Wildlife of Mauritius" (December 18, 5:45 P.M.)—New science of "ecological engineering," thinks biologist Stanley Temple, could save endangered flora and fauna. Baird Auditorium.

National Collection of Fine Arts
"Jackson Pollock: New Found Works" (December 22-February 11)—Among these 105 works of the leading abstract expressionist (most of them previously unpublished and unexhibited paintings, drawings and collages), are "psychoanalytic" drawings from a sketchbook.

National Portrait Gallery
• "Facing the Light: Historic American Portrait Daguerreotypes" (ongoing)—One hundred and ten wonderfully diverse and famous Americans, captured for posterity on silver-coated copper plates called daguerreotypes.
• "Aldabert Volck: Maryland's Fifth-Column Artist" (ongoing)—The Civil War etchings of Baltimore's enigmatic, Prussian-born propagandist.

Renwick Gallery
"Bo'jou, Neejee! Profiles of Canadian Indian Art" (December 19-June 17)—These 191 objects—made of skins, bone, wood, bark, porcupine quills and other materials—celebrate native cultures which flourished from 1750 to 1850 in fur-trading days of the Canadian north.

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National Air and Space Museum

• "Christmas Stars" (December 2, 9 A.M.)—A report on the stars of Christmas 1978—and those of the first Noel too.

• "Wright Brothers Exhibit" (opens December 14 for a year)—The 75th anniversary of powered flight (pp. 36-46).

• "The First Annual Wright Brothers' Symposium" (December 14, 8 P.M.)—Tom Crouch (p. 36) is among the five scholars presenting papers.

Museum of History and Technology

• "The American Skating Mania" (December 1-February 28)—Ice skating, for the record, seems to have been one of our first socially equal recreations.

• "The Commodores" (December 1, 8, 12-1 P.M.)—Noontime jazz concerts with the Navy band "Commodores." Carmichael Auditorium.

• "The Sea Chanters" (December 4, 12-1 P.M.)—The Navy vocal group, wearing nautical costumes, performs songs of the sea and other American music. Carmichael Auditorium.

• "Teddy and the Bear" (through January 2)—Original Teddy Bear, inspired by 1902 incident in which President Theodore Roosevelt refused to shoot a bear cub at the end of an unsuccessful hunting day in Mississippi, celebrates 75th birthday. Soon after Clifford K. Berryman's cartoon appeared in the *Washington Post* (below), the nation was flooded with Teddy bears. Such was the origin of a new campaign symbol and, of course, that fellow perennially found underneath the Christmas tree.

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The famous collection of First Ladies' gowns from the Smithsonian's National Museum of History & Technology is illustrated in this set of 42 beautiful color slides. The most popular exhibit hall in the museum, the collection includes some gowns worn at inaugural festivities. Accompanying the slides is a booklet which describes each of the gowns.

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Buffalos, Eagles & Elephants

From the Smithsonian Institution comes this introductory view, with slides and cassette tape, of buffalos, eagles and elephants and the important roles these three animals, or their ancestors, have played in the history of North America. This set of 65 slides includes a cassette tape and an informative booklet. Provides an exciting educational resource for young viewers.

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Musical Instruments of the Baroque & Early Classical Eras

Beautiful color slides and accompanying music, played on the original instruments, make this unique audio-visual presentation of the Smithsonian Institution invaluable to teachers and students in the field of music. A taped narrative and descriptive booklet provide further information on the history of musical instruments during this period.

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Bhutan, Land of Dragons

Bhutan, nestled in the Himalayan Mountains, has existed as a political entity for 350 years, relatively unchanged and unknown to outsiders. This Smithsonian presentation, richly illustrated with 78 color slides, includes rare views of the Bhutanese people and their lifestyles. The set also includes an informative 30-minute cassette tape.

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The Paintings of Charles Bird King

In the early 19th century, Charles Bird King was a well-known portrait and still-life artist. Included among the 34 vivid color slides are many of King's portraits of prominent national leaders and portraits of American Indians. This Smithsonian production is a wonderful supplement for students or professionals in the field of art history.

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Suiting Everyone

Samples from Suiting Everyone, a popular exhibit in the Smithsonian's National Museum of History & Technology are depicted in this presentation of 80 color slides. The slide program, including a descriptive booklet, documents the change from 18th century custom-made garments to today's mass produced clothing.

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For both the seasoned and would-be traveler, the Smithsonian has developed a travel program to meet a variety of tastes and budgets. In order to accommodate the increasing growth and interests of Smithsonian Associates, the tour programs have expanded, bringing travelers to places reflecting the Institution's interests.

Domestic Study Tours

Christmas at the Smithsonian—December 8-10: Seventh annual Christmas weekend with traditional tree-trimming party and special behind-the-scenes tours.

Yosemite in Winter—January 26-February 4, 1979: Absorb the splendor of Yosemite in winter, while learning about this unique park under the guidance of Yosemite Institute staff. The program will include cross-country skiing and evening lectures on subjects such as forest ecology, glaciology, astronomy and wildlife.

South Texas Wildlife—February 24-March 4: Follow the winter bird migration to the warm climate of the Gulf and Rio Grande Valley to explore the fascinating wildlife refuges of Aransas, Padre Island, Laguna Atascosa and Santa Ana.

New York—March 30-April 2 or April 6-9: Repeat of a popular weekend program featuring special lectures and tour of King Tutankhamun exhibit.

Mississippi—April 19-26: Learn about the history and architecture of Jackson, Vicksburg and Natchez under the auspices of local preservationists.

Big Bend—April 21-28: A nature tour of this Chihuahuan Desert wilderness park in southeast Texas, with its spectacular canyon scenery and abundant wildlife.

Coming in May—A weekend in Chicago focusing on architecture and museums of the city.

Washington "Anytime" Weekend: Choose any weekend to enjoy a special tour of the original Smithsonian building, spend two nights at Loew's L'Enfant Plaza Hotel close to the Mall, and see other sights in Washington by Tourmobile. Reservations and payments must be received at least ten days prior to arrival.

Foreign Study Tours

Red Sea Passage—February 1-11, 1979: Revised version of the very popular voyage of this past winter. Sail from Suez on the *Argonaut,* visit Karnak, Luxor, Valley of the Kings and Abu Simbel in Egypt, Petra in Jordan. Stay at the Mena House Hotel next to the Pyramids for Sakkara and Memphis, the mosques, bazaars and Archaeological Museum of Cairo. *Cruise subscribers may add one or both of the following two options:*
Jerusalem Prelude—January 25-February 2: Also visit Damascus, Baalbek, Basra and Jerash before boarding in Suez.
Tanzania Game Preserves Postlude—February 11-18: Fly from Cairo to Kilimanjaro, visit Arusha, Ngorongoro Crater, Serengeti and Lake Manyara. Return to the United States via London.

Himalayan Cultures—March 21-April 15: Delhi, Agra, Calcutta, Darjeeling, Nepal (including tigers and Everest viewing), and Bhutan for a five-day exploration.

Greek Islands Cruise—April 22-May 3: Sail on the chartered M/V *Neptune* with a limited number of Associates. Visit ancient sites on Aegean islands, circumnavigate the Peloponnesus, sail through the Corinth Canal and stay in Athens.

The Lands of the Hapsburgs—May 14-June 5: Fully subscribed.

Foreign Charter Tours

Kenya, East Africa*—February 1-18, 1979: Wildlife and tribal life adventure providing modern insight—and the Africa that "used to be," in the old safari tradition. Seminars in Nairobi and in the field—Masai Mara; Samburu; Kilaguni.

The Bavaria of Ludwig II —April 9-23: The fantastic architecture created for Ludwig II, builder of the fairy-tale castle of Neuschwanstein and patron of Wagner. Sample Munich's museums and cultural life; travel through the Bavarian Alps and up the "Romantic Road" of Gothic towns and castles; visit Wagner's Bayreuth with its famous Festspielhaus.

Springtime in Greece*—April 29-May 15: A program in Athens and a day cruise to Hydra and Aegina, followed by visits to the renowned sites of ancient civilizations when the countryside is a paradise of wild flowers. An inland tour to the Peloponnesus, Epirus, Thessaly, the Pelion peninsula and the country around Delphi.

The Wild Highlands of Scotland—May 3-19: In cooperation with the Algas Field Centre, based in a Victorian castle, explore the magical scenery of the central Highland glens. Evening lectures provide a foundation for special hikes and field study of the wildlife and natural history.

Paris and the French Countryside*—May 13-27: Museum lectures, a walking tour of the islands of the Seine and excursions to Chartres and Malmaison plus a choice of a week-long travel seminar to Burgundy to visit Dijon, Beaune and other towns of this wine and food center; Provence, including Avignon, Aix-en-Provence and Marseilles; or Normandy and Brittany.

Russia*—May 20-June 3: Leningrad, Tallinn and Moscow; see the Hermitage and Tretyakov Museums, the palaces of Pushkin or Petrodvorets, the ancient Kremlin with its old churches and Armory Museum; visits to schools, factories or clinics; theater and circus.

Midsummer Night*—June 20—July 4: This tour to the upper reaches of Europe begins in Rovaniemi, Finland, on the Arctic Circle. Celebrate the year's longest day with Midsummer Night festivities, travel through Lapland to the breathtaking mountains and dramatic fjords of northern Norway, journey by coastal steamer to the North Cape. Tour ends in Helsinki.

Scotland*—September 9-23: Edinburgh and beyond—a program of walking tours and special visits to castles, abbeys, battlefields and archaeological sites through the Highlands and Lowlands.

Oxford/Smithsonian Seminar—September 14-29: This exciting new program offers an opportunity to select from a unique curriculum taught by members of Oxford University's faculty and to live in Worcester College. Lectures, field trips and an array of special seminars are offered to utilize the rich resources of the university, the Ashmolean Museum, Bodleian Library.

Sultans' Treasures*—September 23-October 7: An adventure tour to Istanbul and Asiatic Turkey, including the royal treasury and collections at Topkapi Palace, the Blue Mosque, an evening in a Turkish home and a cruise on the Bosphorus. Separate excursions to Aegean Turkey, Anatolia or Cappadocia.

Spain*—September 30-October 14: Madrid with museum visits, Spanish folklife and crafts, and day excursions to Toledo or El Escorial. Week-long travel to the Basque country and Barcelona; Andalusia and Córdoba; or the Pilgrimage road to Santiago de Compostela.

Low cost of tours includes first-class hotels, most meals, sightseeing, lectures, theater tickets, air fare. *Indicates optional predeparture course will be available.

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Selected Studies Seminars

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China: A Cultural History—January 14-19; January 21-26: Prehistory to the enigmas of today. Includes films and tours of the outstanding Freer Gallery of Art. (repeat)

Astronomy of the Ancients—March 25-30: Leading authorities and widely known writers who are attracting widespread attention in the rapidly growing field of archaeoastronomy discuss the intriguing discoveries and hot debates concerning ancient peoples' sophisticated knowledge of the sky. Illustrated lectures include monumental Stonehenge; the Egyptian pyramids; the temples, cities and other impressive stone alignments of the Mayans; the methods of the skillful Babylonians and the early American Indians.

French Impressionist Painting—April 1-6: Illustrated lectures and in-depth tours of the great works of Monet, Degas, Renoir, and other masters in the outstanding collection of the National Gallery of Art.

Historic Horticulture—April 29-May 4: Tours of major 18th-20th century gardens in the Washington, D.C., area during spring's floral profusion including the DuPont estates of Longwood and Winterthur Museum; Mount Vernon; the Smithsonian; Hillwood, the former home of Marjorie Merriweather Post; and Dumbarton Oaks; as well as demonstrations by famous designers of historic floral arrangements. (repeat of very popular program)

The Arts of Japan—May 20-25: Major artistic traditions of Japan including pottery; architecture of temples, shrines, palaces and imperial tumuli; painting, and sculpture from prehistoric times to the present with particular emphasis on the impact of Shinto, Buddhism, China, Korea, and the West in the formation of Japanese taste. Well illustrated lectures, films, museum tours of the outstanding collection of the Freer Gallery of Art, as well as special events focusing on Japan today.

Please send requests for full information on content, accommodations and fees by seminar title to: Selected Studies, A&I 1280, Smithsonian Institution, Washington, D.C. 20560.

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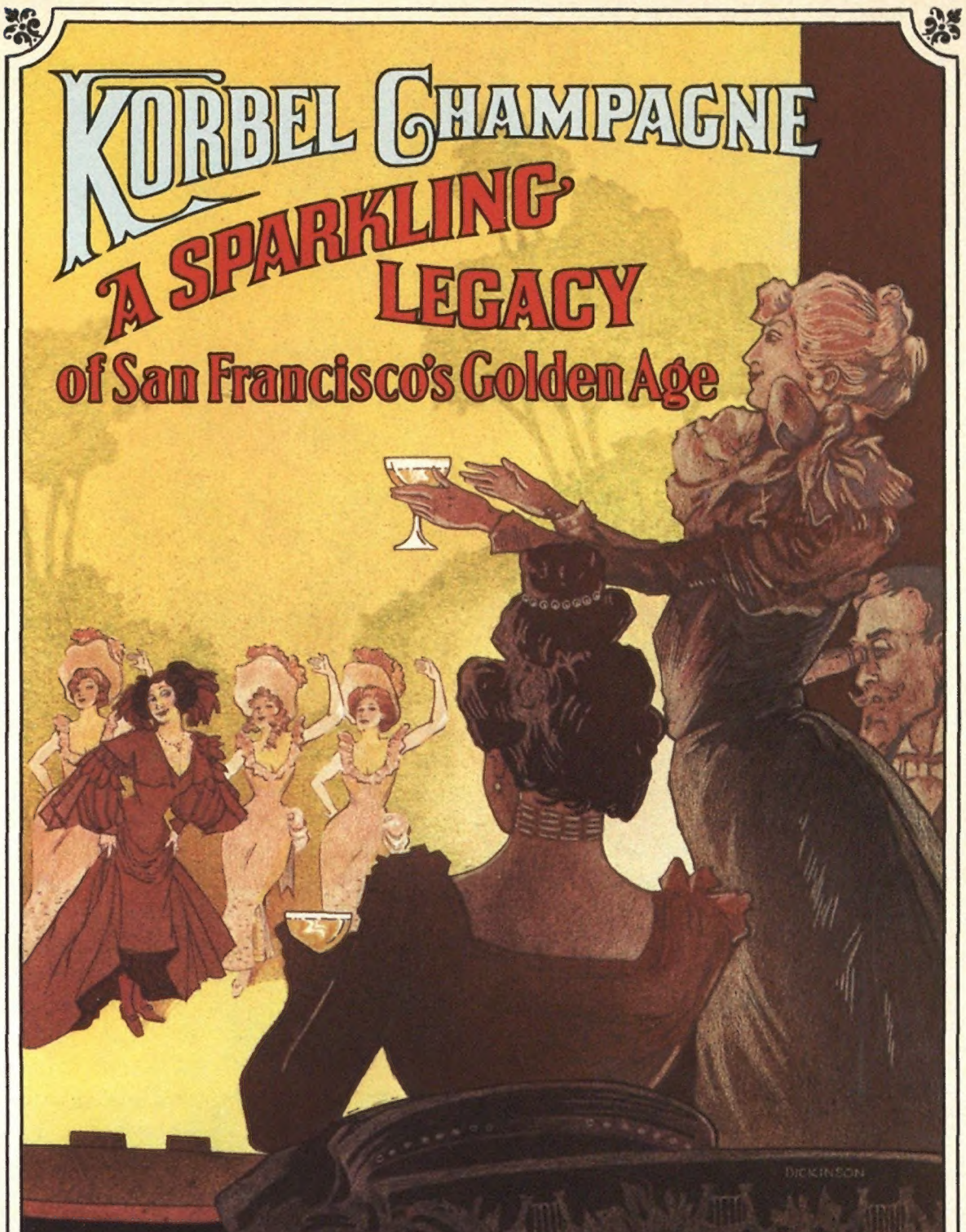

Gaiety Girl delights the Baldwin.

Maude Hobsin and her troupe of "high kickers" were the object evening last of raucous applause, curtain calls and champagne toasts from the Baldwin's boxes.

By all accounts, her dance troupe amazed the patrons with kicks so high their back hair dusted the stage.

There was a time, a golden city and Korbel.

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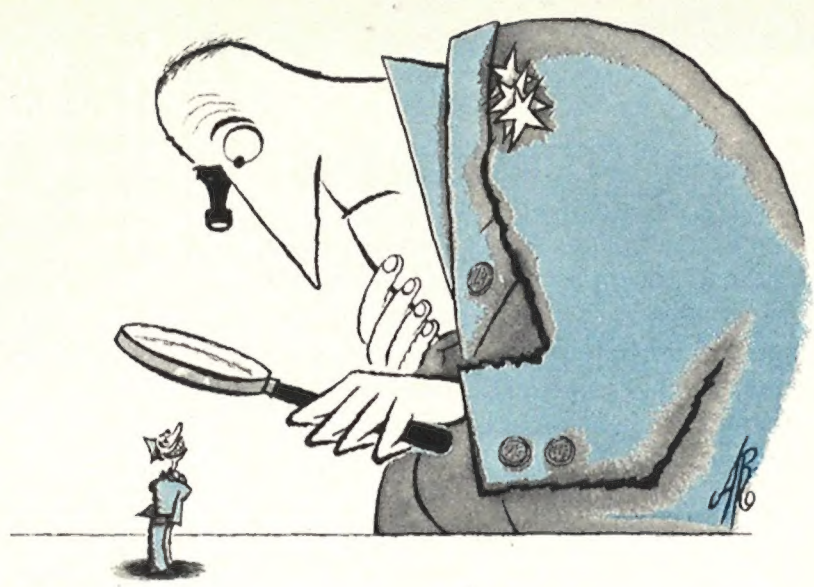

We all get evaluated throughout life—by our children, spouses, superiors—and it's always a question, especially when the evaluations are devastating, whether to take them to heart or shrug them off. None of us, however, can be so damned with faint-praise evaluation as the military officer. In this case "meets standard" may mean you're too late to shape up, better ship out.

Whatever the branch of the military, evaluation is contained in the career-governing efficiency report*. It accumulates during an officer's years of service, speaks for him or her in Washington when major personnel actions (promotions or nonpromotions) are taken, and influences assignments—even to oblivion.

But efficiency reports have a problem: their accompanying rating numbers become inflated. Because raters are loath to really skewer a junior by giving a low number rating, everyone bunches up near the top of the scale. Assume that a score of 100 is the maximum and is tagged "outstanding," that 90 is called "superior," and 80 is "excellent." The hapless officer who is rated at 84 may think he or she is midway between "excellent" and "superior," but in fact is in the bottom 20 percent and should start checking the classified ads for another line of work.

In practice it does not work out exactly that way. In the military system everyone recognizes that the numbers are inflated and have no meaning. Therefore, the *words,* or narrative descriptions, count.

It has been ever thus. From the War of 1812 comes what is reputed to be the U.S. Army's first recorded officer efficiency report. It was written August 15, 1813, by Brigadier General Lewis Cass at Lower Seneca Town in Ohio. Cass reported to the War Department on the 37 officers of the 27th Regiment of Infantry.

At the time neither the 27th Infantry, the Army, nor the young Republic had done well in the war. The victories of Lake Erie and New Orleans were yet to come. The first year of campaigning had yielded embarrassment and a series of reverses at the hands of the British and their Indian allies. The dismal military situation may have influenced General Cass, for he made negative remarks about three-fourths of the regiment's officers.

Cass reserved his worst devastation for men of Irish descent. He dispatched a Captain Shotwell with: "A knave despised by all." Three officers were grouped as "Low vulgar men, Irish, and from the meanest walks of life." Cass repeated himself when he reached the ranks of the third lieutenants, lumping five of them in this lowly category: "All Irish, promoted from the ranks. Low vulgar men." He suggested careers in the building trades, saying "[they are] more fit to carry the hod than the epaulette."

Cass unleashed his strongest language on a poor fellow with an Irish surname, calling Ensign Behan "the very dregs of the earth. Unfit for anything under heaven. God only knows how the poor thing got an appointment."

In spite of the "low vulgar" Irishmen leading the 27th Infantry, the United States eventually survived. Cass left the Army to become the governor of Michigan Territory, a post he held for 18 years. He continued to ascend the ladder of politics as Secretary of War under Jackson, Minister to France, Senator from Michigan, Democratic nominee for President in 1848 (defeated by Zachary Taylor) and Secretary of State.

Even in today's Army, a few raters express themselves in the fashion of Lewis Cass. The selections that follow are culled from recent Army promotion boards.

Wrote one rater: "Lieutenant Brown has a listening problem; he only hears what he wants to hear."

The overall competence of one officer is summed up: "This officer has reached the plateau of a mediocre career." Or, "This is the type of officer who goes through life pushing on doors marked PULL." He was passed over, for sure.

Personal characteristics receive their share of attention: "Major Jones is of slender build, average height, good bearing, has receding hair and keeps unusually long fingernails." Both the board and the rated officer were baffled by this one: "His morals and mental standards are above reproach. I have advised him of this weakness and he has attempted to correct it."

One wonders what prompted this comment: "Needs careful watching, since he borders on the brilliant." Was he more intelligent than the rater?

Unfavorable comments are memorable and numerous, but it takes sharp writing skills to make good ratings stand out. Consider these examples: "He would put a cutting edge on a marshmallow . . . He has a knack of making a point without making an enemy . . . breeds confidence . . . has a way with the men . . . makes them chuckle as they charge."

General Cass would have valued that last one in the 27th Infantry.

**Army:* 1. Outstanding; 2. Superior; 3. Excellent; 4. Effective; 5. Marginal; 6. Inadequate. *Navy:* 1. Top (with four subdivisions); 2. Typically effective (with two subdivisions); 3. Bottom (with three subdivisions). *Air Force:* 1. Well above standard; 2. Above standard; 3. Meets standard; 4. Below standard; 5. Far below standard; 6. Not observed or not relevant. *Marine Corps:* 1. Outstanding; 2. Excellent; 3. Above average; 4. Average; 5. Below average; 6. Unsatisfactory; 7. Not observed.

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